5-4610-205-20

TM 5-4610-205-20

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

WATER PURIFICATION UNIT: BASE MOUNTED: ELECTRIC DRIVEN AC, 120/208-VOLT, SINGLE-PHASE AND 3-PHASE, 60-CYCLE: 3,000 GALLONS PER HOUR (MET-PRO MODEL 3000-2700A) FSN 4610-857-0330

This copy is a reprint which includes current pages from Changes 1 & 2

HEADQUARTERS, DEPARTMENT OF THE ARMY
AUGUST 1963

AGO 5670A

READEX FICHE best copy available

D101.11:

SAFETY PRECAUTIONS

When lifting the crated unit, be sure that the lifting device has a capacity of at least 6,000 pounds. Do not allow the unit to swing while suspended. Failure to observe this warning may result in damage to the unit or severe injury to personnel.

Protect the eyes and skin from direct contact with chemicals. Be especially careful when opening containers to avoid breathing chemical powder. Never mix the two chemicals, calcium hypochlorite and ferric chloride. These two chemicals, when mixed, give off a greenish-yellow gas which is irritating, disagreeable, and has a suffocating odor.

Make sure that all electrical power is disconnected from the control cabinet before performing maintenance on the water purification unit electrical system.

When removing the shipping crate from the unit, remove the lag bolts from one side or end a time and remove sides and ends individually to avoid injury to personnel or damage to the equipment.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *23 August 1968*

Organizational Maintenance Manual

WATER PURIFICATION UNIT: BASE MOUNTED: ELECTRIC DRIVEN, AC, 115/208V, SINGLE PHASE AND 3 PHASE, 60 CYCLE: 3000 GALLONS PER HOUR (MET-PRO MODEL 3000-2700A)

FSN 4610-857-0330

TM 5-4610-205-20, 15 August 1963, is changed as follows:

Cover and page 1. Change "120/208 volt" to read "115/208Vs".

Page 2. Paragraph 1*d* is superseded as follows:

d. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to the Commanding General, U. S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

Page 2. Paragraph 4*b*, sub-paragraph (4.1) is added after sub-paragraph (4) as follows:

(4.1) Agitator Speed Reducer, Serial Number range 3000A-133 through 3000A-191.

Manufacturer	Bond
Model	MP200
Service factor	1.0
Horsepower	1.25
Ratio	12.34 to 1
Torque	400 lb. per inch
Input rpm	1800
Output rpm	146

Page 3. Paragraph 4*b*, sub-paragraph (6.1) is added after sub-paragraph (6) as follows:

(6.1) Slurry Feeder Speed Reducer, Serial Number Range 3000A-113 through 3000A-191.

Manufacturer	Winsmith
Model	4CT
Input rpm	1725
Output rpm	29
Service factor	1.0
Ratio	60 to 1
Output torque	918

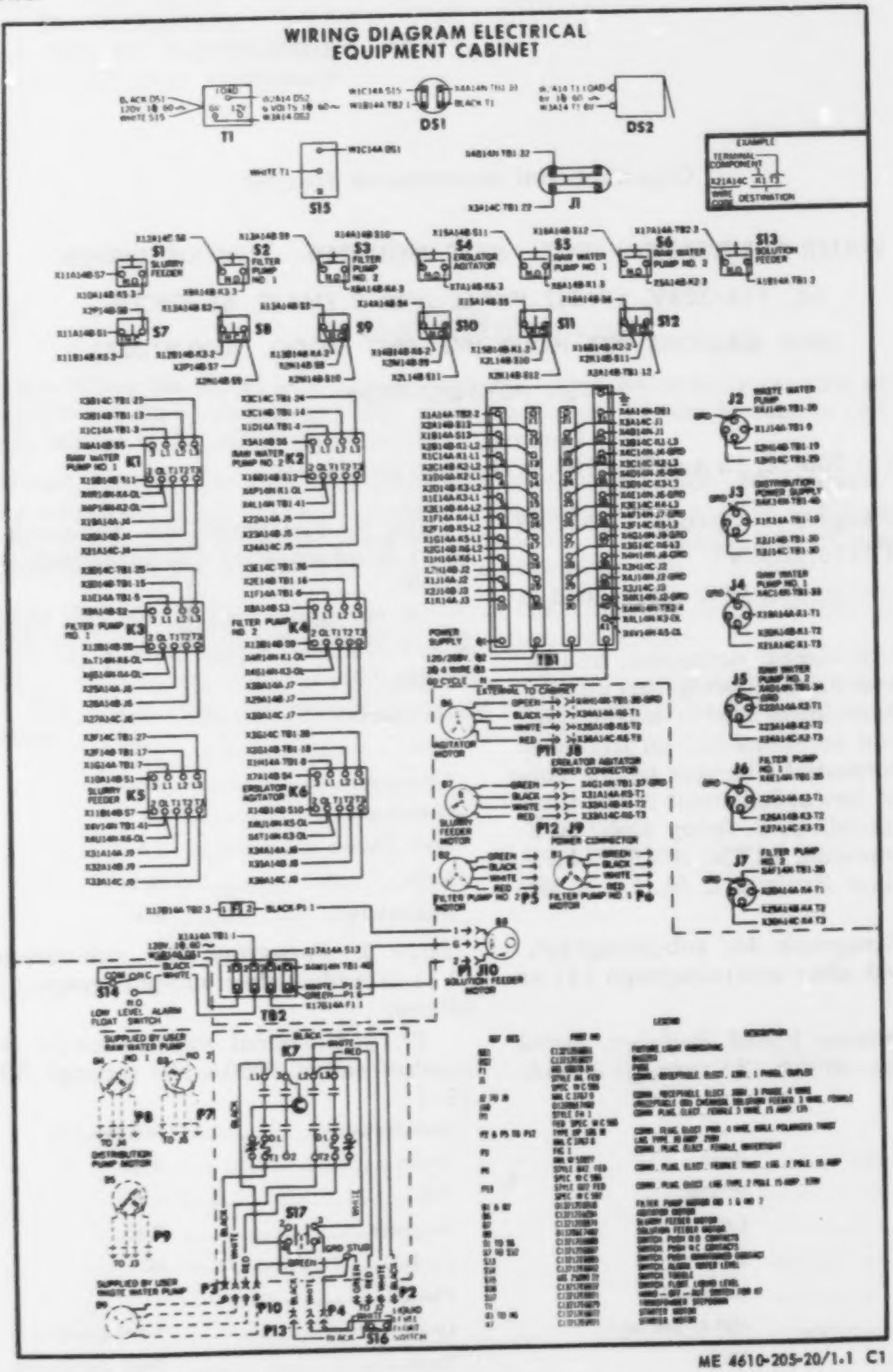
Page 3. Paragraph 4*b*, sub-paragraph (7.1) is added after sub-paragraph (7) as follows:

(7.1) Chemical solution feeder (serial number range 3000A-113 through 3000A-191)

Manufacturer	Met-Pro, Inc.
Model	6620
Volts	115
Amperes	0.85
Cycle	60
Phase	1
Oil capacity	1-1/4 quarts
Type	Dual diaphragm pump
Motor	Immersed in oil

Page 3. Paragraph 4*b*, sub-paragraph (18.1) is added after sub-paragraph (18) as follows:

(18.1) Wiring Diagram, Serial Number Range 3000A-113 through 3000A-119 (fig. 1.1).


WIRING DIAGRAM ELECTRICAL
EQUIPMENT CABINET
T1
DS1
DS2
S15
J1
EXAMPLE
S1
S2
S3
S4
S5
S6
S13
S7
S8
S9
S10
S11
S12
K1
K2
K3
K4
K5
K6
J2
J3
J4
J5
J6
J7
TB1
POWER SUPPLY
120/208V.
60 CYCLE
EXTERNAL TO CABINET
AGITATOR MOTOR
P11 J8
P12 J9
P5
P6
J10
SOLUTION FEEDER MOTOR
S14
LOW LEVEL ALARM FLOAT SWITCH
TB2
SUPPLIED BY USER RAW WATER PUMP
K7
P8
P7
P9
S17
SUPPLIED BY USER WASTE WATER PUMP
P3
P10
P4
P2
P13
S16
LEGEND

ME 4610-205-20/1.1 C1

Figure 1.1. Wiring diagram (serial number range 3000A-133 through 3000A-191.

Page 3. Paragraph 5 is superseded as follows:

5. Differences in Models

This manual covers only the Met-Pro Model 3000-2700A. Differences exist on units within serial number range 3000A-113 through 3000A-191.

Page 12. Paragraph 31.1 is added after paragraph 31 as follows:

31.1. Control Cabinet Door Latches (Serial Numbers 3000A-113 through 3000A-191)

a. Removal. Refer to figure 4.1 and remove the control cabinet door latches.

b. Cleaning and Inspection.

(1) Wash the latches in an approved cleaning solvent and dry thoroughly.

(2) Inspect the latches for cracks, breaks, broken springs, or other damage.

(3) Replace a defective latch.

c. Installation. Refer to figure 4.1 and install the control cabinet door latches.

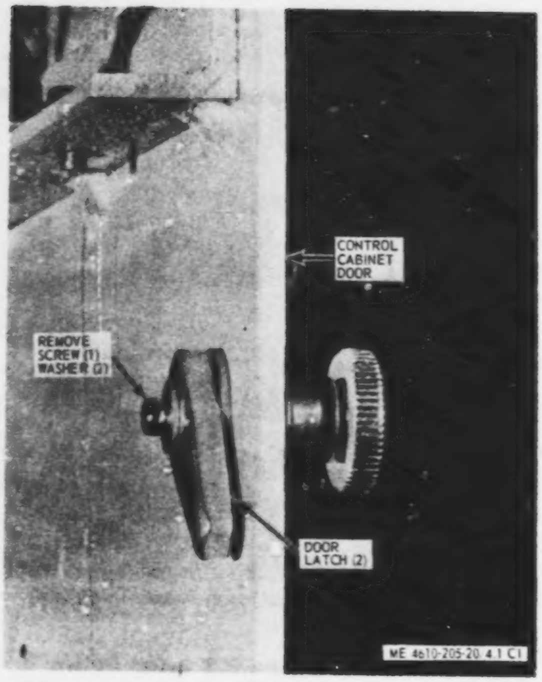


Figure 4.1. Control cabinet door latches, removal and installation (serial number range 3000A-113 through 3000A-191).

Page 13. Paragraph 37.1 is added after paragraph 37 as follows:

37.1. Stop and Start Switches (Serial Numbers 3000A-113 through 3000A-191)

a. Removal. Refer to figure 9.1 and remove the stop and start switches.

b. Cleaning and Inspection.

(1) Wipe the switches clean with a dry, clean cloth.

(2) Inspect the switches for cracks, broken terminals, and defective spring action.

(3) Replace a defective switch.

c. Installation. Refer to figure 9.1 and install the stop and start switches.

Page 14. Figure 6.1 is added after figure 6.

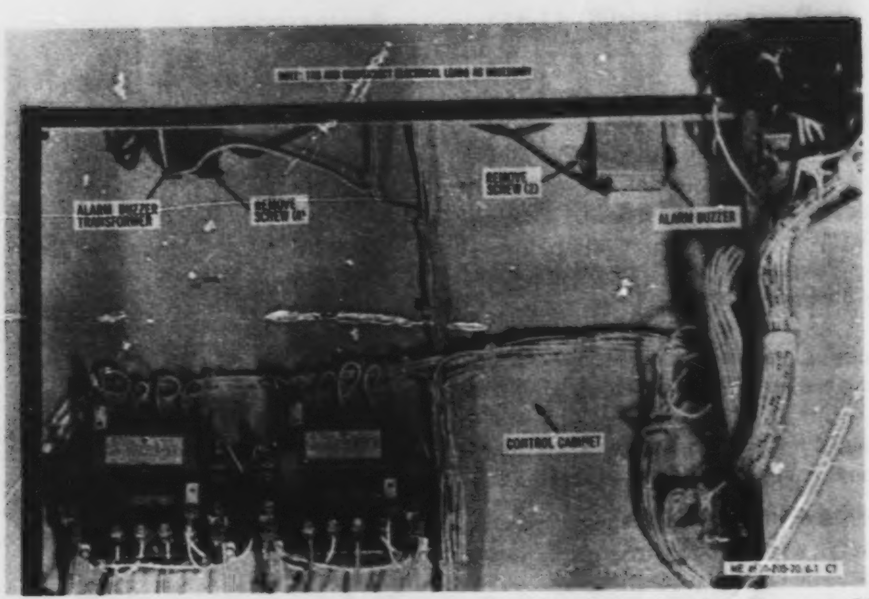

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY
ALARM BUZZER TRANSFORMER
REMOVE SCREW (2)
REMOVE SCREW (2)
ALARM BUZZER
CONTROL CABINET
ME 4610-205-20/6.1 C1

Figure 6.1. Low water level alarm buzzer transformer, removal and installation (serial number range 3000A-118 through 3000A-191).

Page 16. Add figure 9.1 after figure 9.

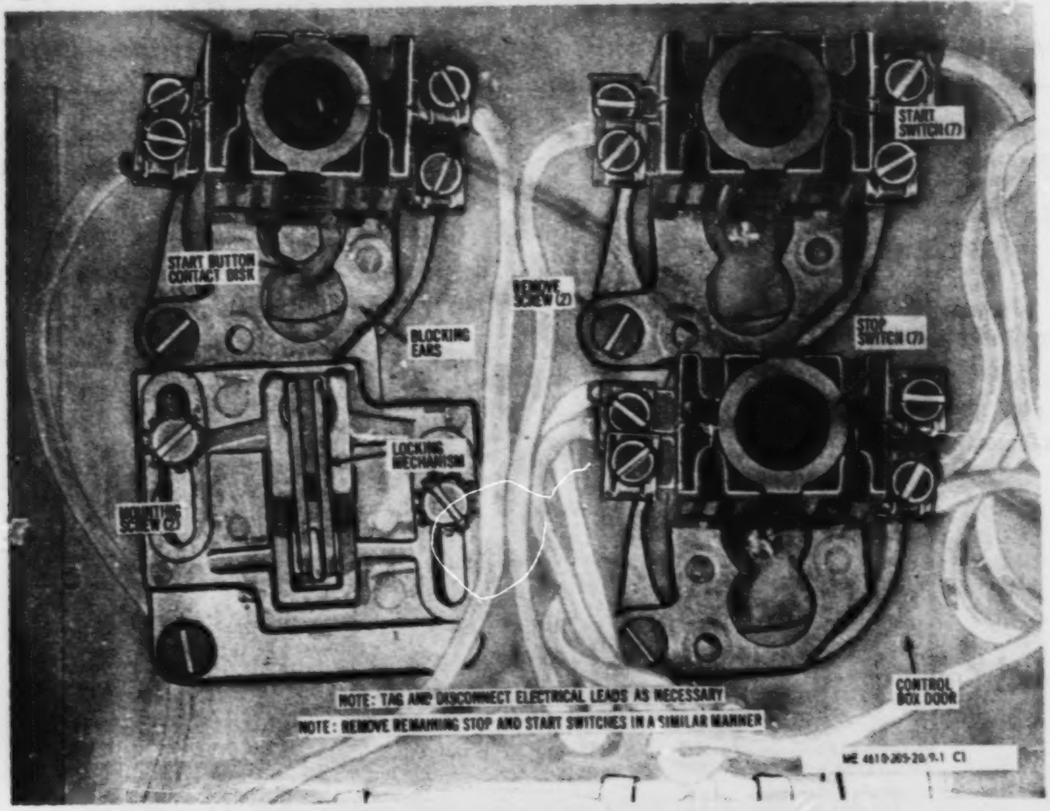

START SWITCH (2)
START BUTTON CONTACT DISK
REMOVE SCREW (2)
BLOCKING EARS
STOP SWITCH (2)
LOCKING MECHANISM
MOUNTING SCREW (2)
CONTROL BOX DOOR
NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY
NOTE: REMOVE REMAINING STOP AND START SWITCHES IN A SIMILAR MANNER
ME 4610-205-20/9.1 C1

Figure 9.1. Stop and start switches, removal and installation (serial number range 3000A-113 through 3000A-191).

Page 16. Add note after paragraph 40 as follows:

Note. Met-Pro model 3000-2700A bearing serial numbers within 3000A-113 through 3000A-191 are not equipped with an ammeter.

Page 16. Add note after paragraph 41 as follows:

Note. Met-Pro Model 3000-2700A bearing serial numbers within 3000A-113 through 3000A-191 are not equipped with a voltmeter.

Page 17. Paragraph 44.1 is added after paragraph 44.

44.1. Control Cabinet Assembly

a. Removal.

(1) Disconnect and remove the power cable from the control cabinet.

(2) Refer to figure 14.1 and remove the control cabinet assembly.

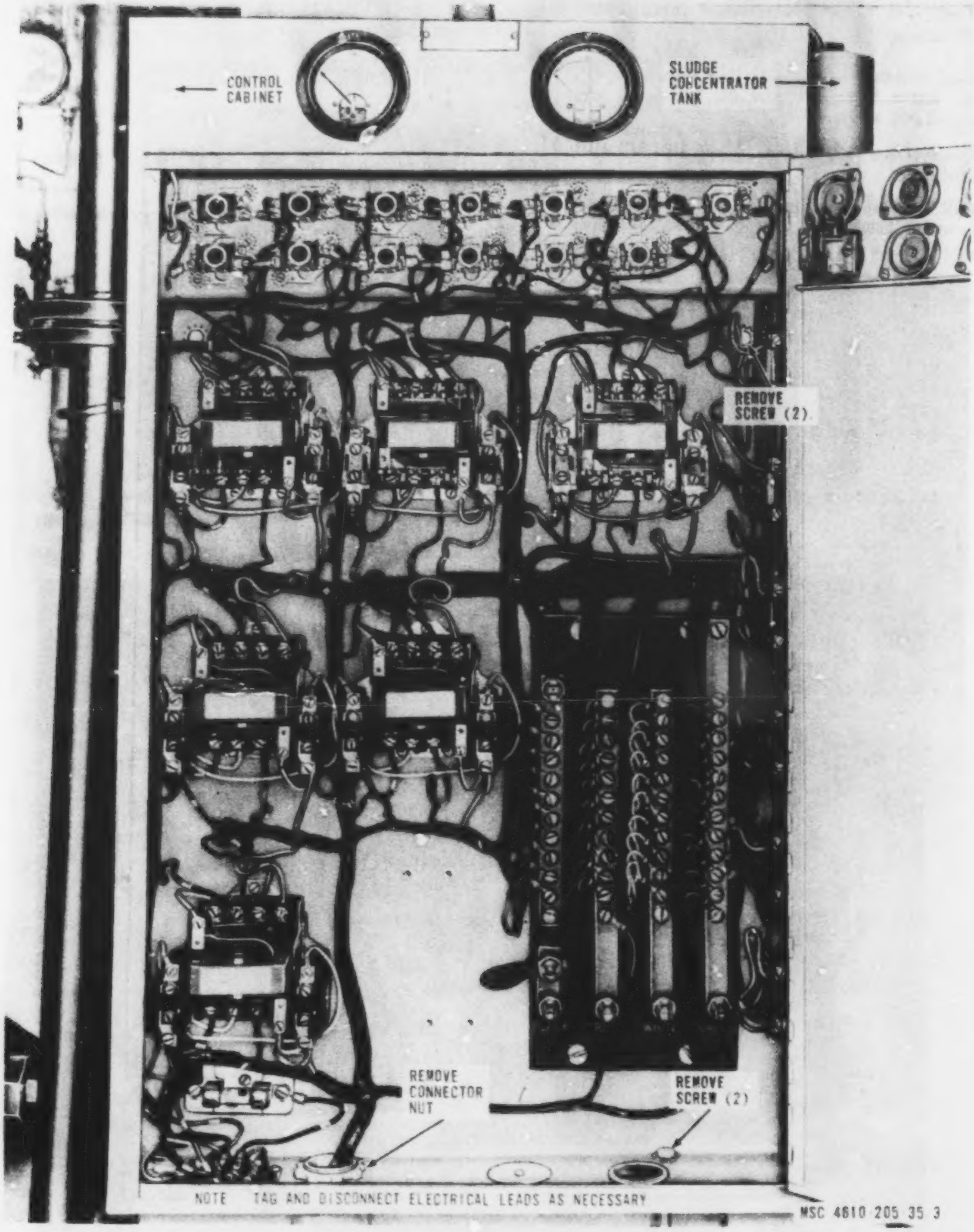

CONTROL CABINET
SLUDGE CONCENTRATOR TANK
REMOVE SCREW (2)
REMOVE CONNECTOR NUT
REMOVE SCREW (2)
NOTE TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY
MSC 4610 205 35 3

Figure 14.1. Control cabinet assembly, removal and installation.

b. Disassembly. Remove the ammeter (para 40), voltmeter (para 41), low water level alarm light (para 32), low water level alarm buzzer (para 33), alarm transformer (para 34), alarm silence switch (para 35), stop and start buttons (para 36), stop and start switches (para 37), fuse holder (para 38), motor contactors, overload relays and relay heaters (para 39), control cabinet receptacle connectors (para 42), terminal board (para 44).

c. Cleaning, Inspection and Repair.

(1) Clean the control cabinet with an approved cleaning solvent and dry thoroughly.

(2) Inspect the control cabinet for cracks, breaks, dents, or other damage.

(3) Repair or replace a damaged control cabinet as necessary.

d. Reassembly. Install the terminal board (para 44), terminal block (para 43), control cabinet receptacle connectors (para 42), motor contactors, overload relays and relay heaters (para 39), fuse holder (para 38), start and stop switches (para 37), start and stop buttons (para 36), alarm silence switch (para 35), alarm transformer (para 34), low water level alarm buzzer (para 33), low water level alarm light (para 32), voltmeter (para 41) and ammeter (para 40).

e. Installation.

(1) Refer to figure 14.1 and install the control cabinet assembly.

(2) Install the power cable on the control cabinet (fig. 5, TM 5-4610-205-10).

Page 17. Paragraph 44.2 is added after paragraph 44.1.

44.2. Control Cabinet Assembly (Serial Numbers 3000A-113 through 3000A-191)

a. Removal.

(1) Disconnect and remove the power cable from the control cabinet.

(2) Refer to 14.2 and remove the conduit.

(3) Refer to figure 14.3 and remove the control cabinet assembly.

b. Disassembly. Remove the alarm silence switch (fig. 7), buzzer, and transformer (fig. 6), stop and start switch mounting bracket (fig. 9), motor contactors (fig. 11), terminal board (fig. 14), and terminal block (fig. 10), stop and start buttons (fig. 8), fuse holder (fig. 10), and receptacle connectors (fig. 13), low water level alarm light (para 32), and control cabinet door latches (para 31).

c. Cleaning, Inspection and Repair.

(1) Wash the control cabinet in an approved cleaning solvent and dry throughly.

(2) Inspect the control cabinet for cracks, breaks, dents, and other damage.

(3) Repair or replace the control cabinet as necessary.

d. Reassembly. Install the control cabinet door latches (para 31), low water level alarm light (para 32), fuse holder (fig. 10) and receptacle connectors (fig. 13), stop and start buttons (fig. 8), terminal board (fig 14), and terminal block (fig 10), motor contactors (fig 11), stop and start switch mounting bracket (fig 9), alarm silence switch (fig 7), buzzer, and transformer (fig. 6).

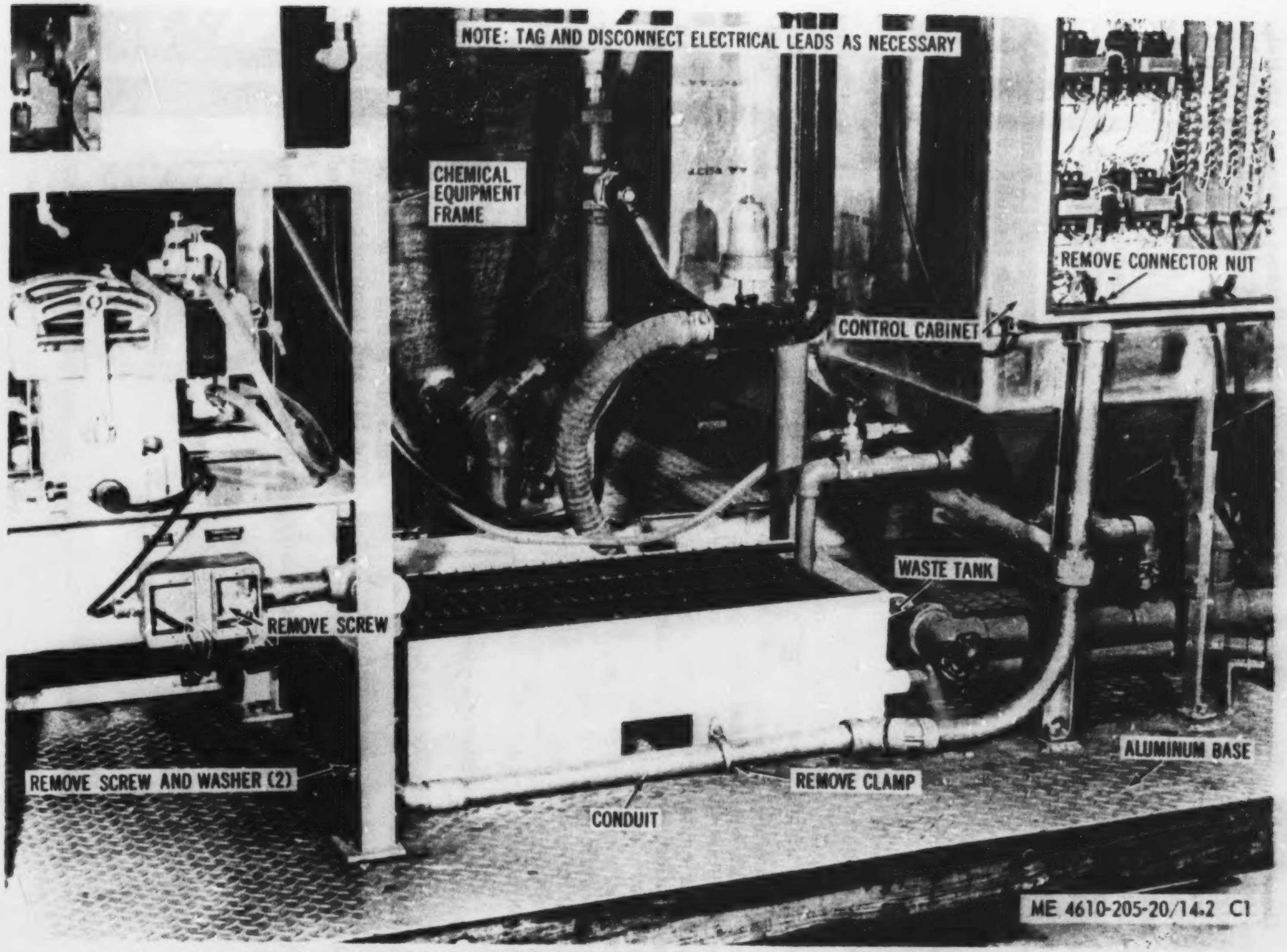

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY
CHEMICAL EQUIPMENT FRAME
REMOVE CONNECTOR NUT
CONTROL CABINET
WASTE TANK
REMOVE SCREW
ALUMINUM BASE
REMOVE SCREW AND WASHER (2)
REMOVE CLAMP
CONDUIT
ME 4610-205-20/14.2 C1

Figure 14.2. Conduit, removal and installation (Serial number range 3000A-113 through 3000A-191).

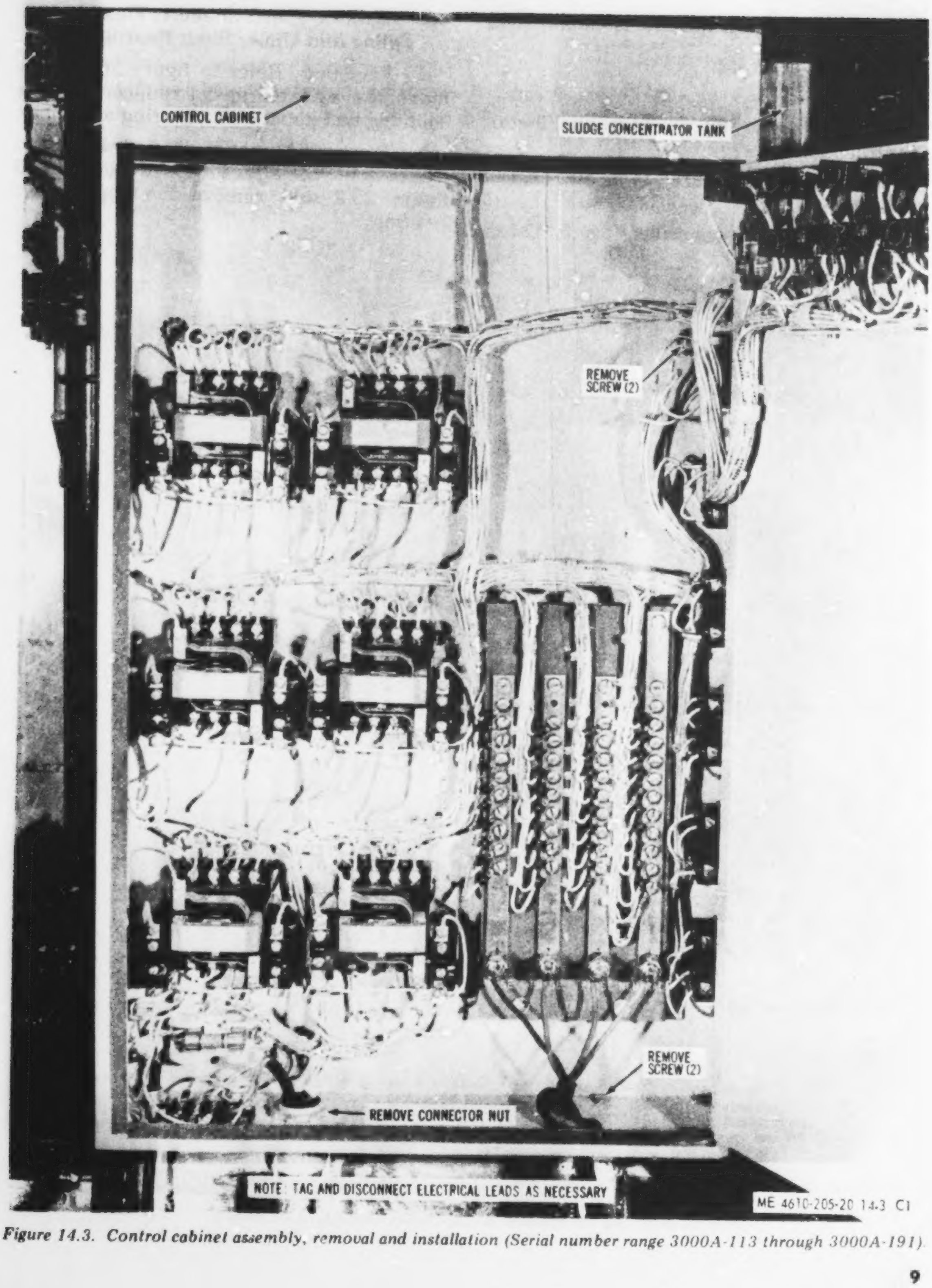

CONTROL CABINET
SLUDGE CONCENTRATOR TANK
REMOVE SCREW (2)
REMOVE SCREW (2)
REMOVE CONNECTOR NUT
NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY
ME 4610-205-20 14-3 C1

Figure 14.3. Control cabinet assembly, removal and installation (Serial number range 3000A-113 through 3000A-191).

Page 21. Paragraph 48 is superseded as follows:

e. Installation.

(1) Refer to figure 14.3 and install control cabinet assembly.

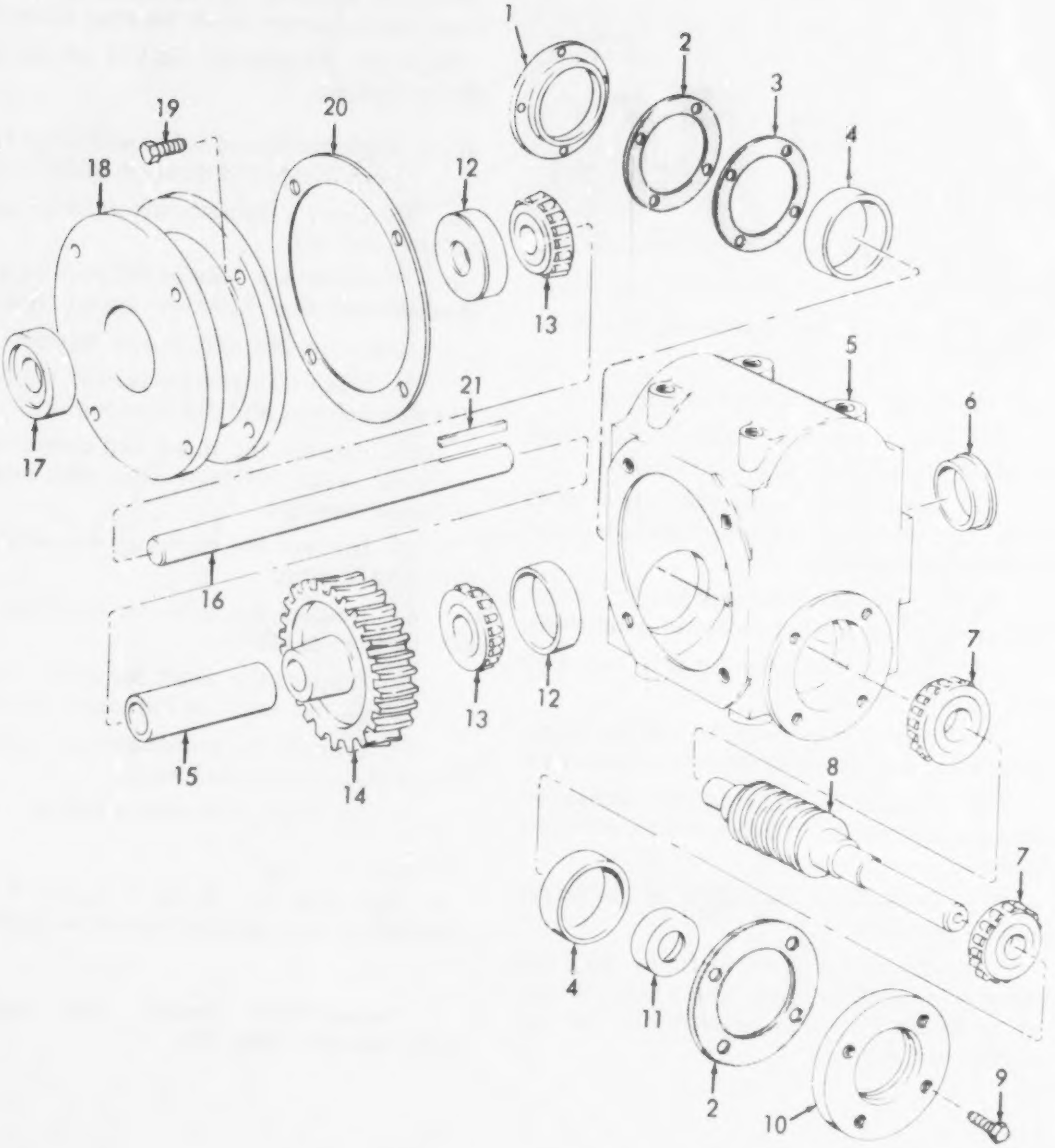
(2) Refer to figure 14.2 and install conduit.

(3) Install power cable (fig. 5, TM 5-4610-205-10).

48. Agitator Speed Reducer, Flexible Coupling and Upper Shaft Bearing

a. Removal. Refer to figure 20 and remove the agitator speed reducer, flexible coupling and upper shaft bearing assembly.

b. Disassembly. Refer to figure 20.1 and disassemble the agitator speed reducer, and figure 20.2 and remove the upper shaft bearing.



EMC 4610-204-35/30

1 Input cover
2 Shim (2 rqr)
3 Shim (2 rqr)
4 Bearing cup (2 rqr)
5 Housing
6 Cap
7 Bearing cone and roller (2 rqr)
8 Input worm and shaft
9 Screw, cap, hex-hd, No. 10-24 x 1/2 in. (8 rqr)
10 Cover
11 Input shaft seal
12 Bearing cup (2 rqr)
13 Bearing cone and roller
14 Gear
15 Spacer
16 Output shaft
17 Output shaft seal
18 Output flange cover
19 Screw, cap, hex-hd, 1/4-20 x 5/8 in. (4 rqr)
20 Shim
21 Key, machine, 3/16-1-7/8 in.

Figure 20.1. Agitator speed reducer, disassembly and reassembly.

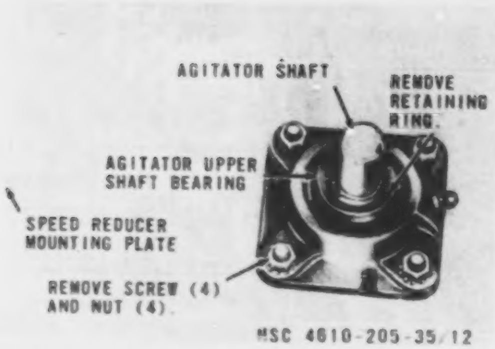

AGITATOR SHAFT
REMOVE RETAINING RING.
AGITATOR UPPER SHAFT BEARING
SPEED REDUCER MOUNTING PLATE
REMOVE SCREW (4) AND NUT (4).
MSC 4610-205-35/12

Figure 20.2. Agitator upper shaft bearing, removal and installation.

c. *Cleaning, Inspection and Repair.*

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the input and output shaft seals for wear, rust, deterioration and bent or distorted castings.

(3) Inspect the bearings for rust, wear, pitting, binding or other defective conditions.

(4) Inspect the gear for cracked, broken, or worn teeth.

(5) Inspect the shaft for cracks, wear, distortion, and worn or damaged keyways.

(6) Inspect the housing and other components for cracks, breaks, wear, or other defects.

(7) Replace a damaged or defective part as necessary.

d. *Reassembly.* Refer to figure 20.2 and install the agitator upper shaft bearing. Refer to figure 20.1 and reassemble the agitator speed reducer.

e. *Installation.* Refer to figure 20 and install the agitator speed reducer, flexible coupling and upper shaft bearing assembly.

Page 21. Paragraph 48.1 is added after paragraph 48.

48.1. Agitator Speed Reducer (Serial Numbers 300A-113 through 300A-191)

a. *Removal.* Remove the agitator speed reducer (fig. 20)

b. *Disassembly.* Refer to figure 20.3 and disassemble the agitator speed reducer.

c. *Cleaning, Inspection and Repair.*

(1) Wash all metal parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the input and output shaft seals for wear, deterioration, and bent or distorted casings.

(3) Inspect the bearings for wear, pitting, and binding.

(4) Inspect the gear for cracked, broken, or worn teeth.

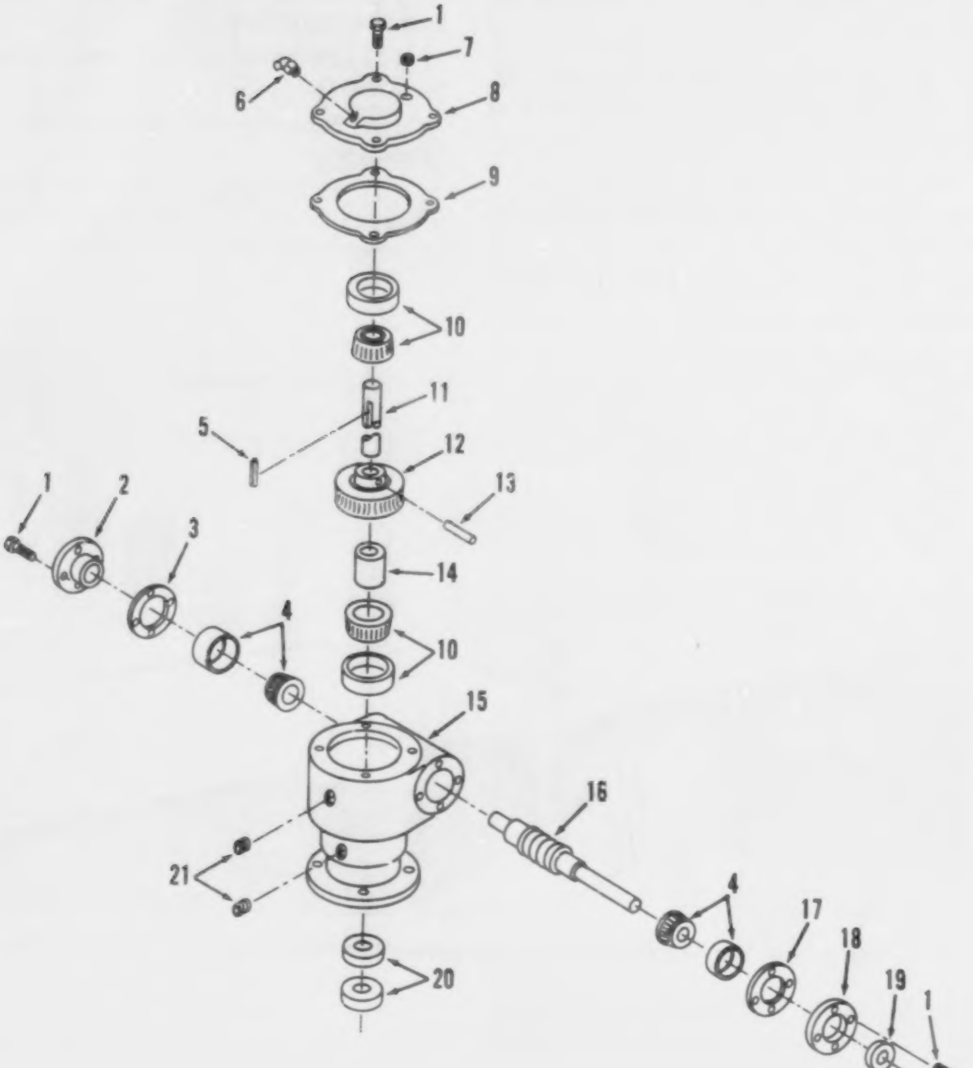
(5) Inspect the shaft for wear, cracks, distortion, and worn or damaged keyways.

(6) Inspect the housing and other parts for cracks, breaks, and wear.

(7) Replace all defective parts.

d. *Reassembly.* Refer to figure 6.1 and reassemble the agitator speed reducer.

e. *Installation.* Install the agitator speed reducer (fig. 20).



ME 4610-205-20/20.3 C1

1 Screw (12 rqr)
2 Cap, closed
3 Gasket, high speed
4 Bearing, high speed (2 rqr)
5 Key
6 Fitting
7 Plug, vented

8 Cover, closed
9 Gasket, low speed
10 Bearing, low speed (2 rqr)
11 Shaft, low speed
12 Gear, low speed
13 Pin
14 Spacer, low speed

15 Case
16 Worm, high speed
17 Gasket, high speed
18 Cap, open
19 Oil seal, high speed
20 Oil seal, low speed
21 Plug

Figure 20.3. Agitator speed reducer, disassembly and reassembly (serial number range 3000A-113 through 3000A-191).

Page 34. Paragraph 57.1 is added after paragraph 57.

57.1. Bridge Rails, Influent Launder, Effluent Launder, Downcomer Tube and Agitator

a. Removal.

(1) Remove the drive motor base assembly (para 46).

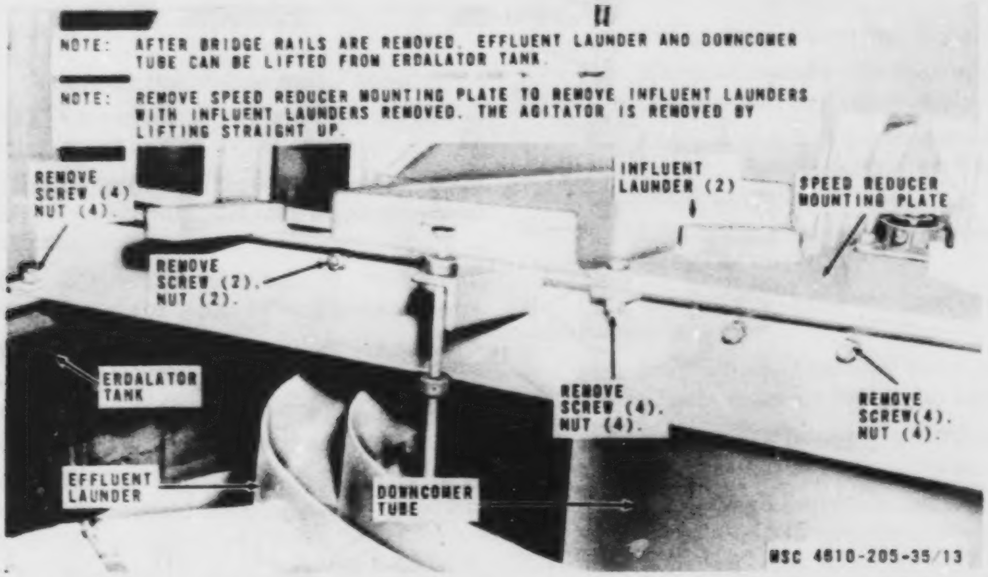
(2) Remove the effluent launder leveling rods and tube (para 57).

(3) Remove the agitator drive shaft and bearings (para 47).

(4) Remove the raw water asperator manifold (para 53).

(5) Remove the agitator upper shaft (para 48).

(6) Refer to figure 33.1 and remove the bridge rails, influent launder, effluent launder, downcomer tube and agitator.



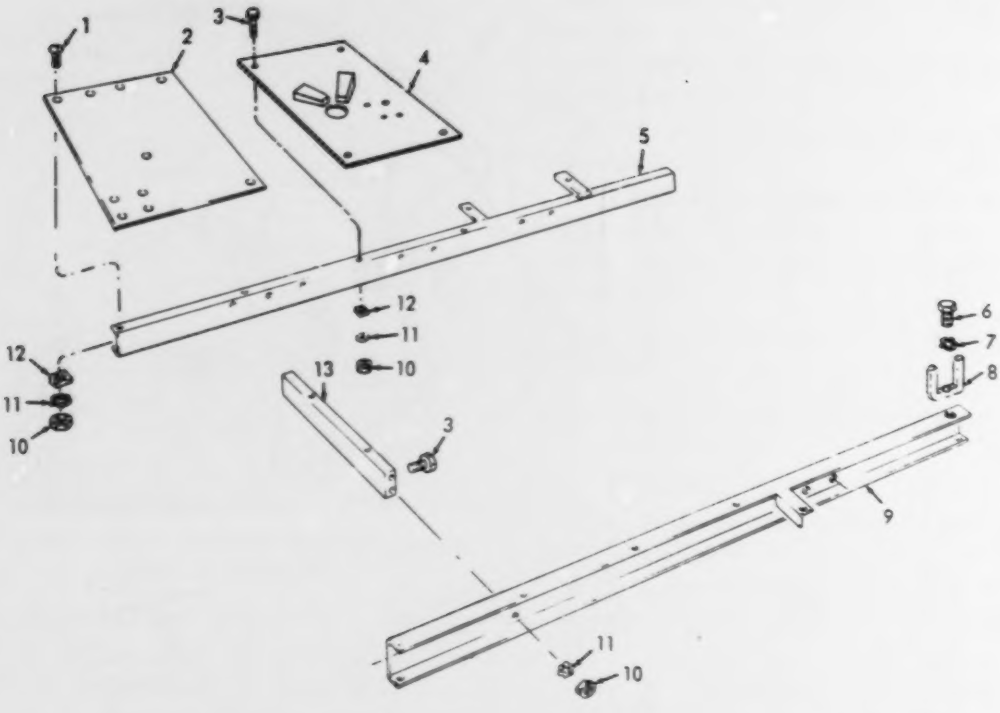
NOTE: AFTER BRIDGE RAILS ARE REMOVED. EFFLUENT LAUNDER AND DOWNCOMER TUBE CAN BE LIFTED FROM ERDALATOR TANK.

NOTE: REMOVE SPEED REDUCER MOUNTING PLATE TO REMOVE INFLUENT LAUNDERS WITH INFLUENT LAUNDERS REMOVED. THE AGITATOR IS REMOVED BY LIFTING STRAIGHT UP.

REMOVE SCREW (4) NUT (4).
REMOVE SCREW (2). NUT (2).
INFLUENT LAUNDER (2)
SPEED REDUCER MOUNTING PLATE
ERDALATOR TANK
REMOVE SCREW (4). NUT (4).
REMOVE SCREW(4). NUT (4).
EFFLUENT LAUNDER
DOWNCOMER TUBE
MSC 4610-205-35/13

Figure 33.1. Bridge rails, influent launder, effluent launder, downcomer tube and agitator, removal and installation.

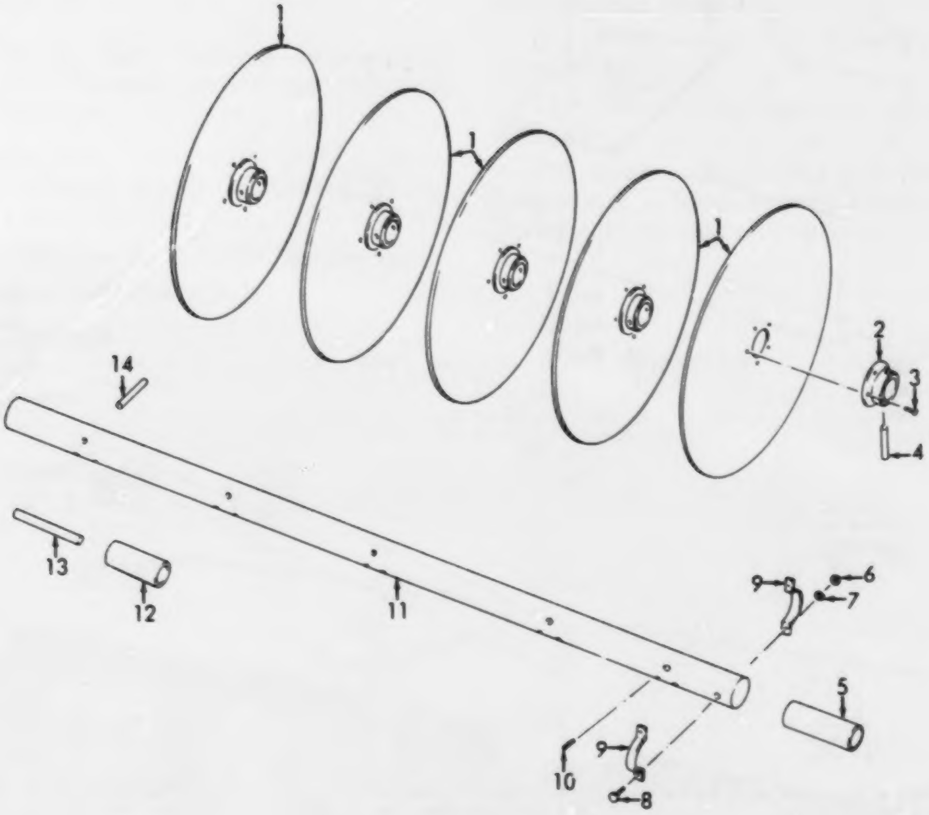
b. Disassembly. Refer to figure 33.2 and disassemble the bridge rails and figure 33.3 and disassemble the agitator.



NSC 4810-205-35/14

1 Screw, cap, hex-hd, 3/8-16 x 1-3/4 in. (5 rqr)
2 Motor mounting plate
3 Screw, cap, hex-hd, 3/8-16 x 1-1/4 in. (8 rqr)
4 Speed reducer mounting plate
5 Left hand bridge rail
6 Screw, machine, No. 10-28 x 5/8 in. (3 rqr)
7 Washer, lock, IET, No. 10 (3 rqr)
8 Hose clip (3 rqr)
9 Right hand bridge rail
10 Nut, hex, 3/8-16 (9 rqr)
11 Washer, lock, IET, 3/8 in. (9 rqr)
12 Bevel washer (9 rqr)
13 Bridge rail support

Figure 33.2. Bridge rails, disassembly and reassembly.



EMC 4610-203-35/68

1 Agitator disk (5 rqr)
2 Agitator disk hub (5 rqr)
3 Rivet, aluminum, 1/8 x 3/4 in. (40 rqr)
4 Pin, headless, aluminum, 1/4 x 3 in. (10 rqr)
5 Agitator shaft sleeve bearing
6 Nut, hex, 1/4-20 (2 rqr)
7 Washer, lock, 1/4 in. (2 rqr)
8 Screw, cap, hex-hd, 1/4-20 x 3/4 in. (2 rqr)
9 Shaft clamp (2 rqr)
10 Setscrew, 1/8-32 x 1/2 in.
11 Agitator shaft
12 Bushing
13 Upper shaft
14 Pin, aluminum, 1/4 x 2-1/2 in. (2 rqr)

Figure 33.3. Agitator, disassembly and reassembly.

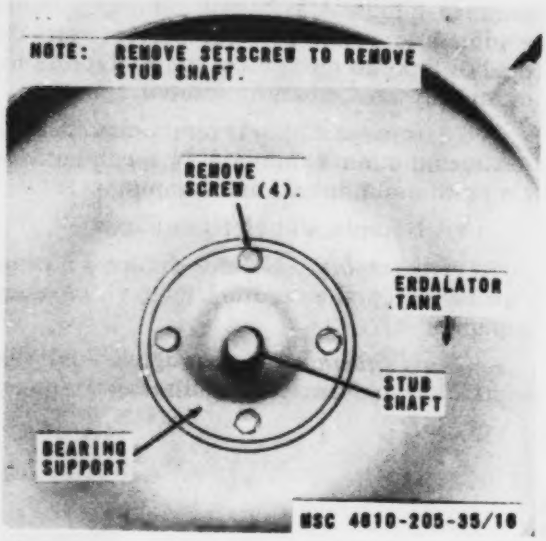


Figure 33.4. Agitator stub shaft and bearing support, removal and installation.

b. Cleaning and Inspection.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect for breaks, cracks, dents, bends, or other defects.

(3) Replace a damaged or defective part as necessary.

c. Installation.

(1) Refer to figure 33.4 and install the agitator stub shaft and bearing support.

(2) Install the agitator and downcomer tube (para 57.1).

d. Cleaning, Inspection and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect for breaks, cracks, dents, bends, rust, corrosion or other defects.

(3) Replace a damaged or defective part as necessary.

e. Reassembly. Refer to figure 33.3 and reassemble the agitator and figure 33.2 and reassemble the bridge rails.

f. Installation.

(1) Refer to figure 33.1 and install the effluent launder, the influent launder, the bridge rails, the downcomer tube and the agitator.

(2) Install the agitator upper shaft (para 48).

(3) Install the raw water asperator manifold (para 53).

(4) Install the agitator drive shaft and bearings (para 47).

(5) Install the effluent launder leveling rods and tube (para 57).

(6) Install the drive motor base assembly (para 46).

Page 34. Paragraph 57.2 is added after paragraph 57.1.

57.2. Agitator Stub Shaft and Bearing Support

a. Removal.

(1) Remove the agitator and downcomer tube (para 57.1).

(2) Refer to figure 33.4 and remove the agitator stub shaft and bearing support.

Page 36. Paragraph 59.1 is added after paragraph 59.

59.1. Chemical Solution Feeder (Serial 3000A-113 through 3000A-191)

a. Removal. Refer to figure 34.1 and remove the chemical solution feeder.

b. Cleaning and Inspection.

(1) Clean the solution feeder with an approved cleaning solvent and dry thoroughly.

(2) Inspect the solution feeder for cracks, breaks, loose mounting hardware, and loose or damaged electrical receptacle.

(3) Replace all defective parts.

(4) Replace a damaged or defective solution feeder.

c. Installation. Refer to figure 34.1 and install the chemical solution feeder.

Page 36. Paragraph 60.1 is added after paragraph 60.

60.1. Solution Feeder Diaphragm Pumps (Serial Numbers 300A-113 through 3000A-191)

a. Removal. Refer to figure 34.1 and remove the solution feeder diaphragm pumps.

b. Disassembly. Refer to figure 35.1 and disassemble the solution feeder diaphragm pumps.

c. Cleaning and Inspection.

(1) Clean all foreign matter from the pump components.

(2) Inspect for a white coating on any of the components. A white coating indicates mineral deposits. Remove the deposits by wiping and soaking the parts in muratic acid (a 5 percent hydrochloric acid solution) or an approved cleaning solvent.

(3) Inspect all parts for cracks, breaks, wear, and other damage. Pay special attention to the diaphragm for damage.

(4) Replace all defective parts.

d. Reassembly. Refer to figure 35.1 and reassemble the solution feeder diaphragm pumps.

e. Installation. Refer to figure 34.1 and install the solution feeder diaphragm pumps.

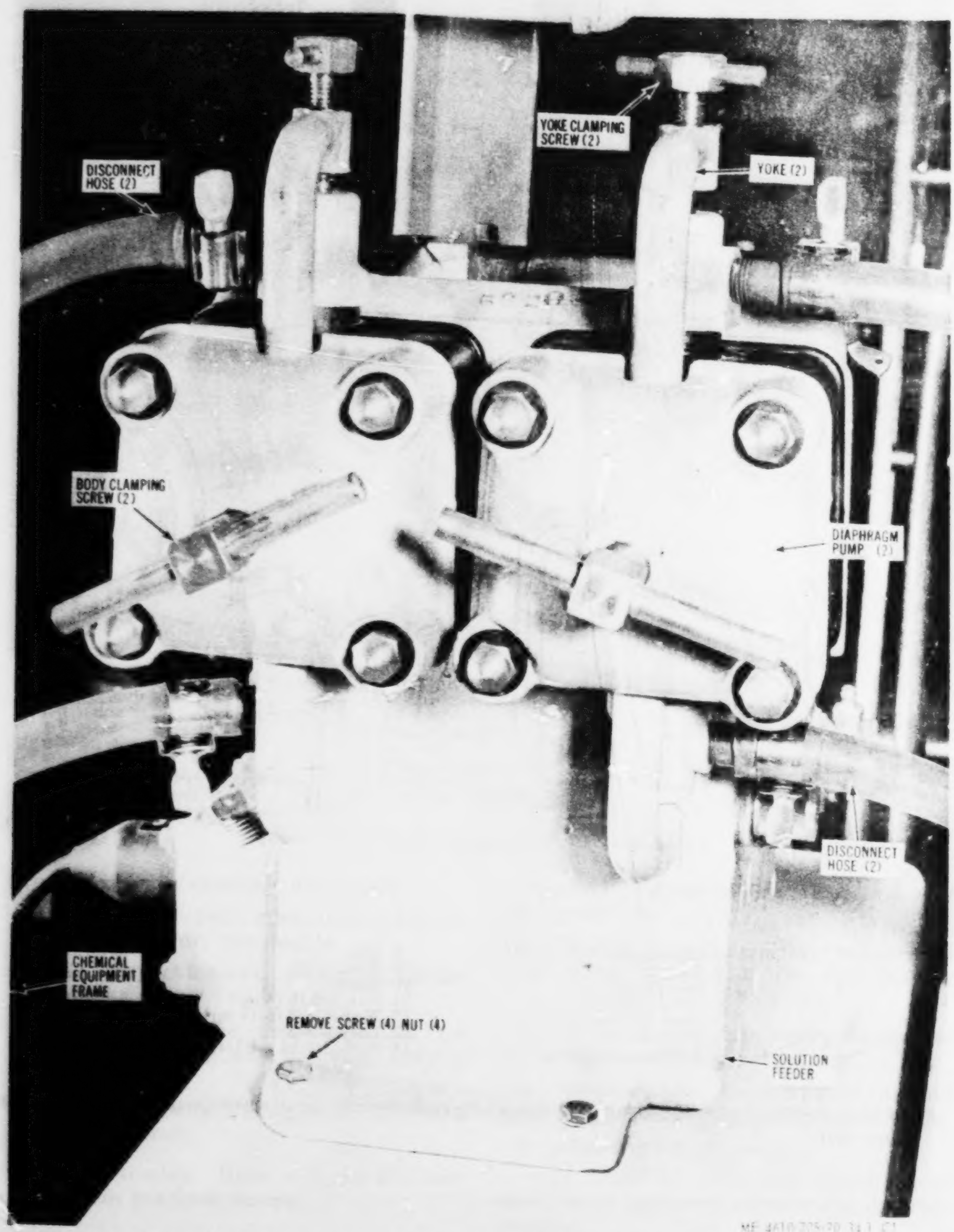
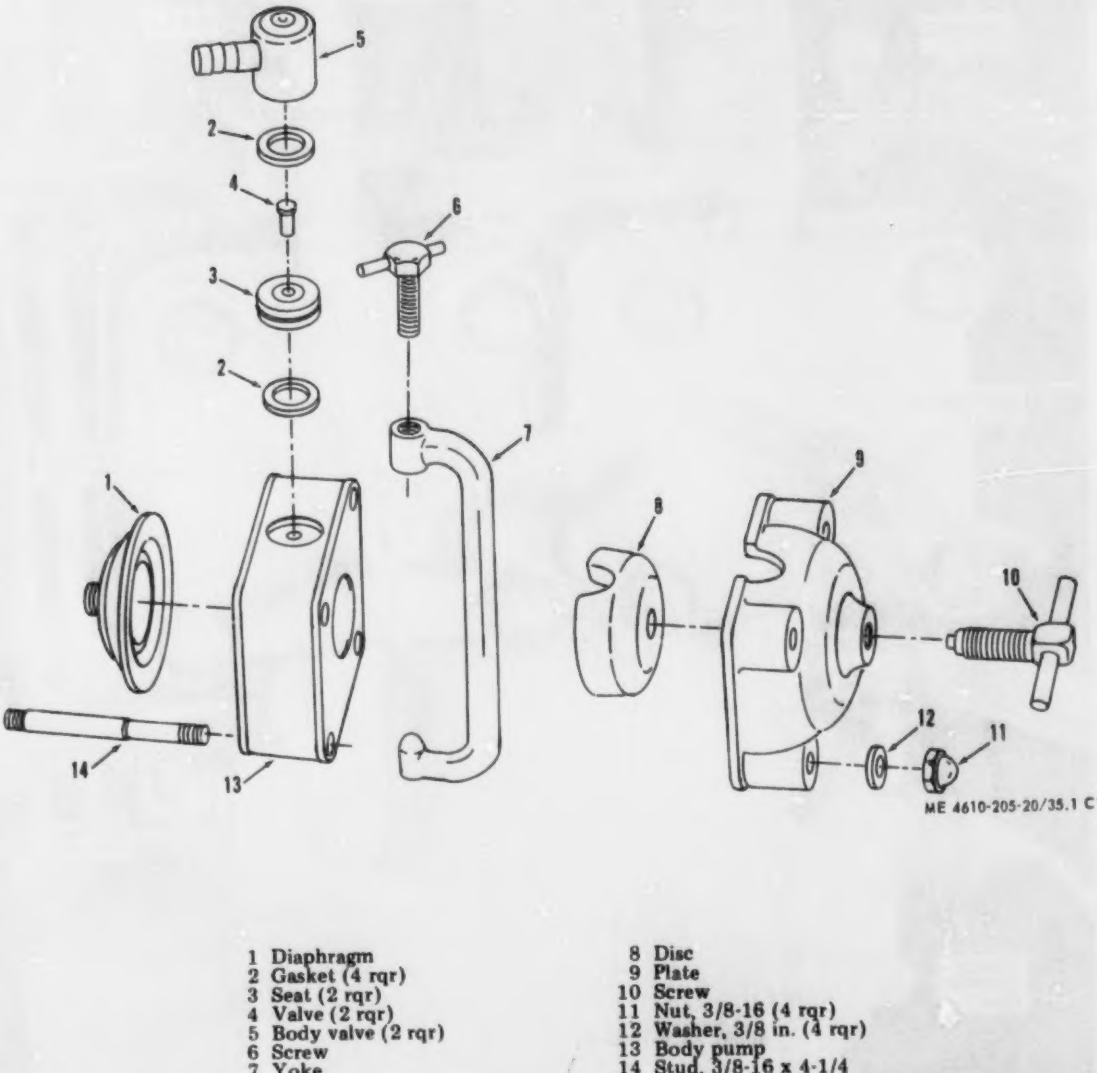

YOKE CLAMPING SCREW (2)
DISCONNECT HOSE (2)
YOKE (2)
BODY CLAMPING SCREW (2)
DIAPHRAGM PUMP (2)
DISCONNECT HOSE (2)
CHEMICAL EQUIPMENT FRAME
REMOVE SCREW (4) NUT (4)
SOLUTION FEEDER
ME 4610-205-20/34.1 C1

Figure 34.1. Solution feeder diaphragm pumps, removal and installation (serial number range 3000A-113 through 3000A-191).


5
2
4
6
3
2
7
1
9
8
10
12
11
14
13
ME 4610-205-20/35.1 C1

1 Diaphragm
2 Gasket (4 rqr)
3 Seat (2 rqr)
4 Valve (2 rqr)
5 Body valve (2 rqr)
6 Screw
7 Yoke

8 Disc
9 Plate
10 Screw
11 Nut, 3/8-16 (4 rqr)
12 Washer, 3/8 in. (4 rqr)
13 Body pump
14 Stud, 3/8-16 x 4-1/4 (94 rqr)

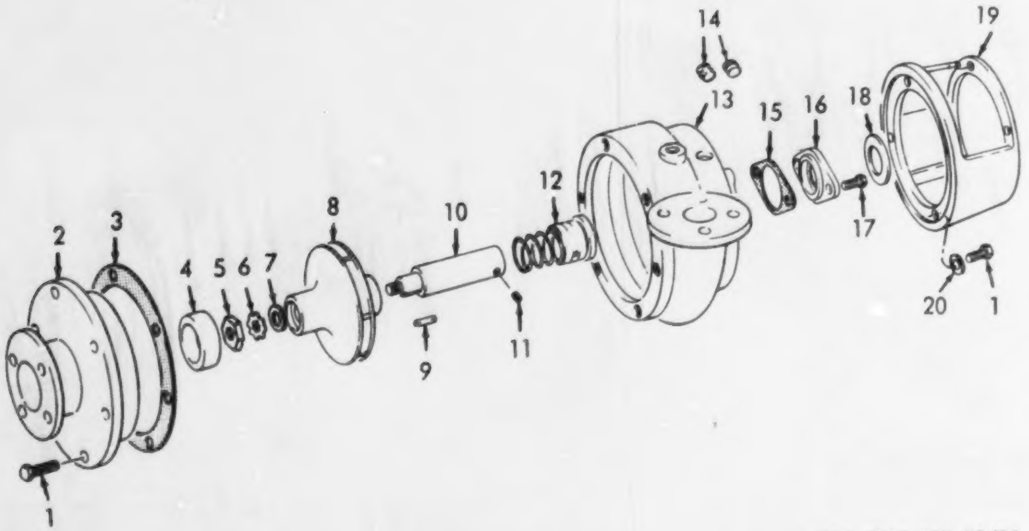
Figure 35.1. Solution feeder diaphragm pumps, disassembly and reassembly (serial number range 3000A-113 through 3000A-191).

Page 53. Paragraph 75 is superseded as follows:

75. Filter Pumps

a. Removal. Refer to figure 53 and remove the filter pumps.

b. Disassembly. Refer to figure 53.1 and disassemble the filter pumps.



MSC 4810-205-35/34

1	Screw, cap, hex-hd, 3/8-16 x 7/8 in. (14 rqr)	8	Impeller	15	Gasket
2	Suction head	9	Key, machine, 3/16 x 3/16 x 1-1/2 in.	16	Gland
3	Gasket	10	Impeller shaft	17	Screw, cap, hex-hd, 5/16-18 x 3/4 in. (2 rqr)
4	Wear ring	11	Setscrew	18	Deflector
5	Locknut	12	Pump seal assembly	19	Adapter
6	Washer, lock, IET (special)	13	Pump casing	20	Washer, flat, 3/8 in. (14 rqr)
7	Washer, flat (special)	14	Pipe plug, 1/4 in. (2 rqr)		

Figure 53.1. Filter pump, disassembly and reassembly.

c. Cleaning, Inspection and Repair.

(1) Wash all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect for wear, distortion, cracks and breaks.

(3) Inspect the seal assembly for a weakened spring and damaged seating surface.

(4) Replace a damaged or defective part as necessary.

d. Reassembly. Refer to figure 53.1 and reassemble the filter pumps.

e. Installation. Refer to figure 53 and install the filter pumps.

Page 53. Paragraph 76.1 is added after paragraph 76.

76.1. Waste Pump Control Box (Serial Numbers 3000A-113 Through 3000A-191)

a. Removal. Refer to figure 54 and remove the waste pump control box.

b. Disassembly. Refer to figure 55.1 and disassemble the waste pump control box.

c. Cleaning and Inspection.

(1) Clean all parts with a cloth dampened in an approved solvent and dry thoroughly.

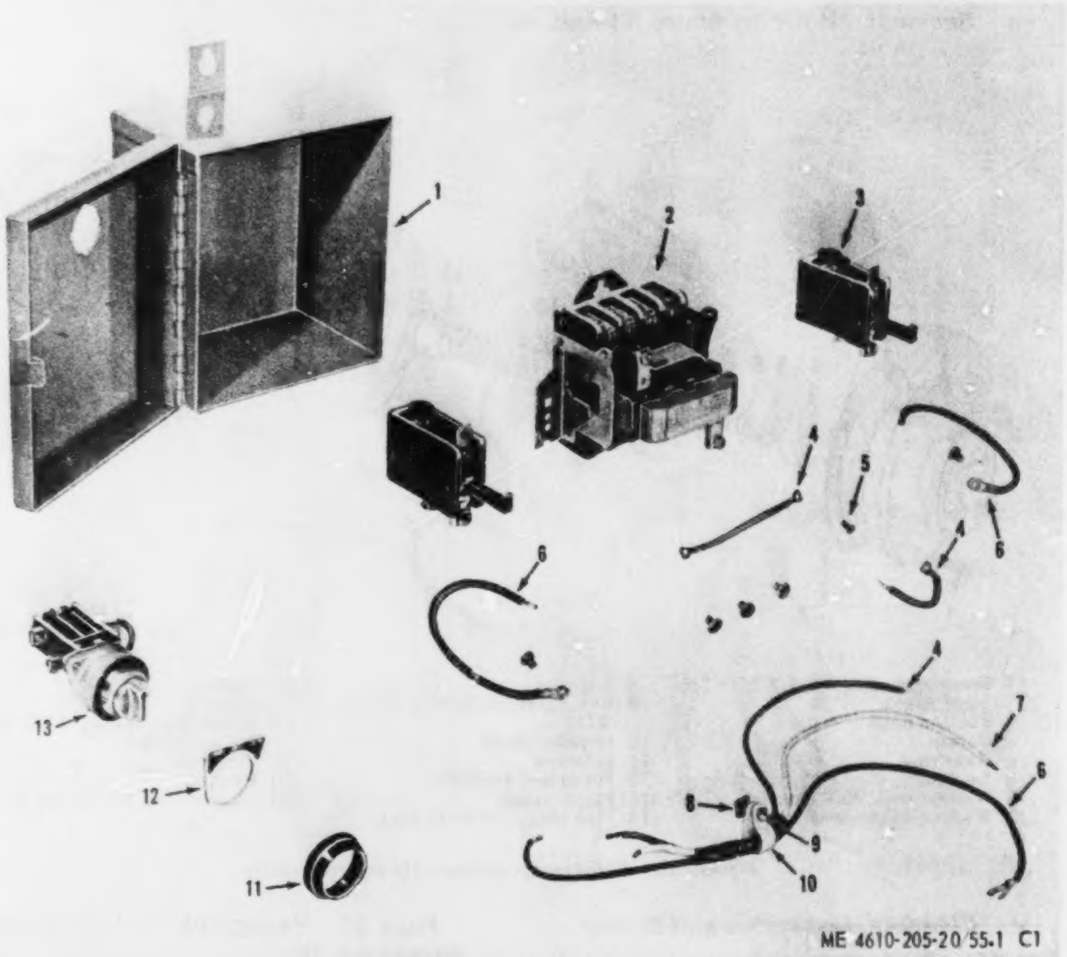
(2) Inspect for cracks, breaks, damaged wiring, loose or broken terminals, or

other defects.

(3) Replace all defective parts.

d. Reassembly. Refer to figure 55.1 and reassemble the waste pump control box.

e. Installation. Refer to figure 54 and install the waste pump control box.



1 Starter box
2 Contacts and relay coil assembly
3 Armature relay (2 rqr)
4 Electrical lead, red (3 rqr)
5 Screw
6 Electrical lead, black (3 rqr)
7 Electrical lead, white (1 rqr)
8 Nut, No. 8-32
9 Screw, No. 8-32
10 Clamp
11 Locknut
12 Instruction plate
13 Switch

Figure 55.1. Waste pump control box, disassembly and reassembly (serial number range 3000A-113 through 3000A-191).

Page 60. Paragraph 85.1 is added after paragraph 85.

85.1. Waste Water Level Switch (Serial Numbers 3000A-113 through 3000A-191)

a. Removal. Refer to figure 63.1 and remove the waste water level switch.

b. Disassembly. Refer to figure 64.1 and disassemble the waste water level switch.

c. Cleaning and Inspection.

(1) Wipe the switch free of foreign matter using a clean, dry cloth.

(2) Inspect the switch for cracks, dents, defective wiring and damaged floats.

(3) Replace a defective switch.

d. Reassembly. Refer to figure 64.1 and reassemble the waste water level switch.

e. Installation. Refer to figure 63.1 and install the waste water level switch.

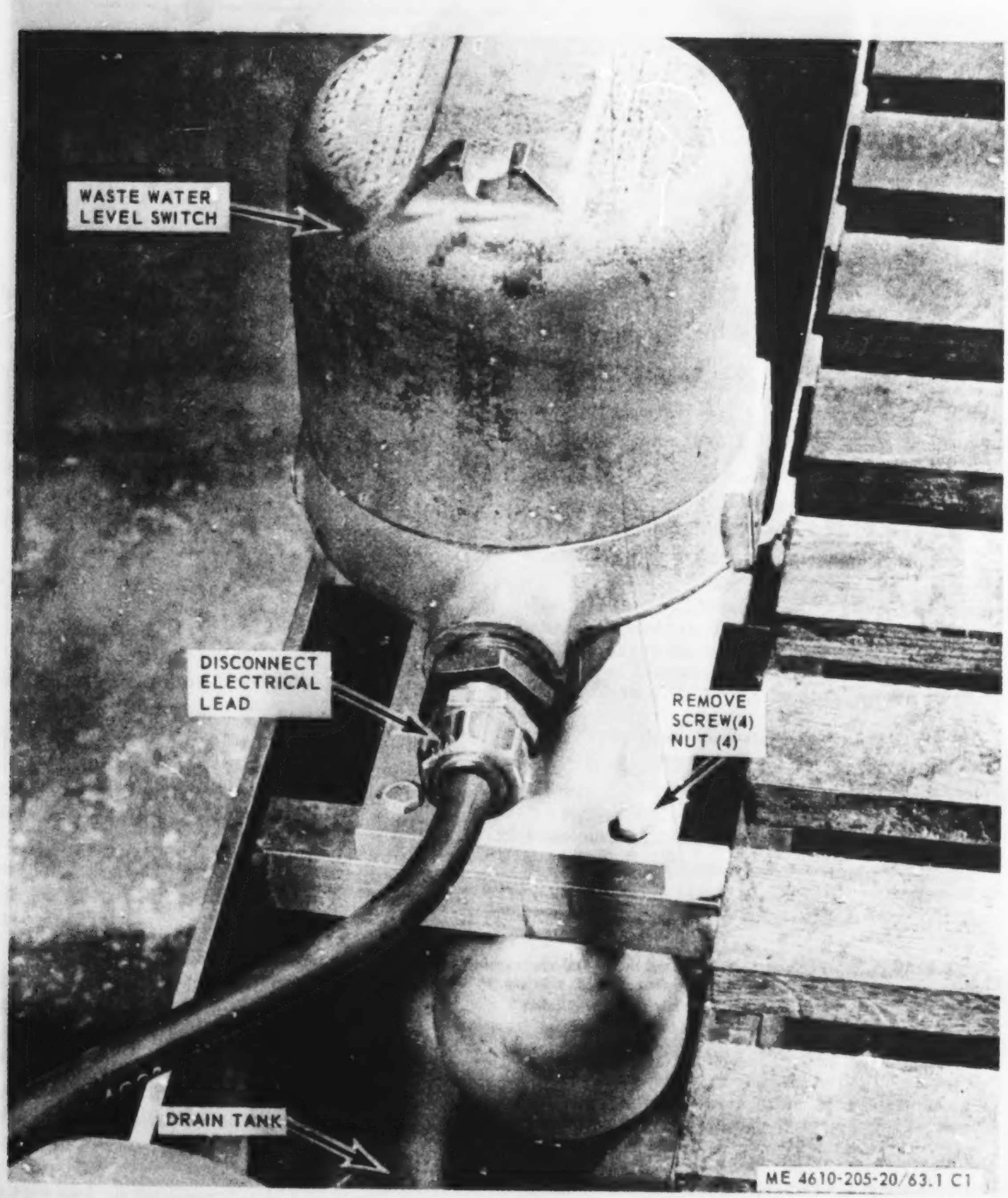
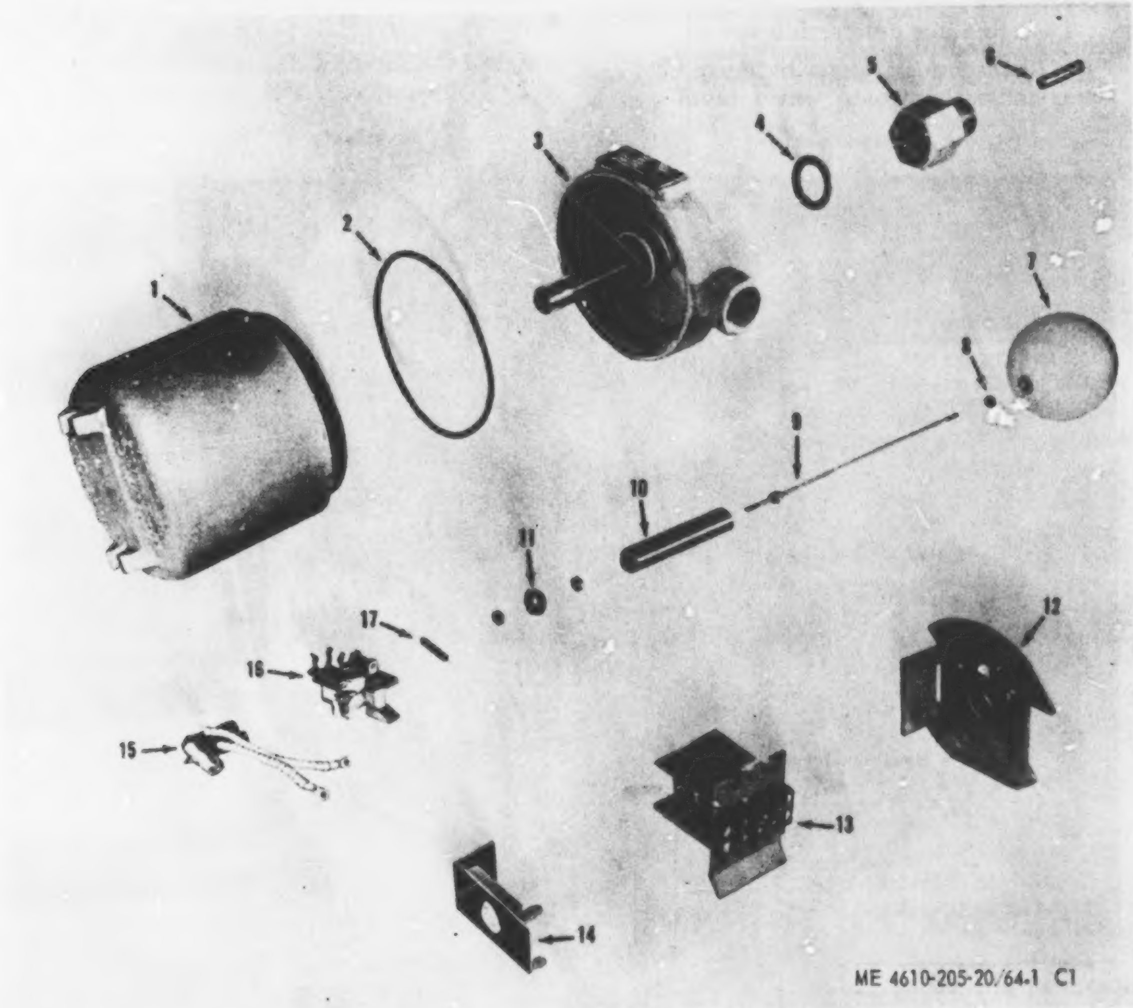

WASTE WATER LEVEL SWITCH
DISCONNECT ELECTRICAL LEAD
REMOVE SCREW(4) NUT (4)
DRAIN TANK
ME 4610-205-20/63.1 C1

Figure 63.1. ***Waste water level switch, removal and installation (serial number range 3000A-113 through 3000A-191).***


1
2
3
4
5
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12
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14
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17
ME 4610-205-20/64-1 C1

1 Cover
2 Packing
3 Housing
4 Gasket
5 Adapter
6 Tube
7 Float
8 Nut, No. 8-32 (5 rqr)
9 Stem
10 Sleeve
11 Washer
12 Plate
13 Terminal block and switch housing
14 Cover
15 Mercury switch
16 Switch pivot assembly
17 Spring

64.1. Waste water level switch, disassembly and reassembly (serial number range 3000A-113 through 300A-191).

Page 67. Appendix II is superseded as follows:

APPENDIX II
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

2. Explanation of Columns in Section II

a. Group Number. Column 1. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1, Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

b. Functional Group. Column 2. This column contains a brief description of the components of each functional group.

c. Maintenance Functions. Column 3. This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designations for the various maintenance categories are as follows:

C—Operator or crew
O—Organizational maintenance
F—Direct support maintenance
H—General support maintenance
D—Depot maintenance

The maintenance functions are defined as follows:

A—INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

B—TEST. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

C—SERVICE. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.

D—ADJUST. To rectify to the extent necessary to bring into proper operating range.

E—ALIGN. To adjust specified variable elements of an item to bring to optimum performance.

F—CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

G—INSTALL. To set up for use in an operational environment such as an emplacement, site, or vehicle.

H—REPLACE. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

I—REPAIR. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.

J—OVERHAUL. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary (IROAN) technique.

K—REBUILD. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

d. Tools and Equipment. Column 4. This column is provided for referencing by code the special tools and test equipment, (Section III) required to perform the maintenance functions (Section II).

e. Remarks. Column 5. This column is provided for referencing by code the remarks (Section IV) pertinent to the maintenance functions.

3. Explanation of Columns in Section III

a. Reference Code. This column consists of a number and a letter separated by a dash. The number references the T&TE requirements column on the MAC. The letter represents the specific maintenance function the item is to be used with. The letter is representative of columns A through K on the MAC.

b. Maintenance Category. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

c. Nomenclature. This column lists the name or identification of the tool or test equipment.

d. Tool Number. This column lists the manufacturer's code and part number, or Federal Stock Number of tools and test equipment.

4. Explanation of Columns in Section IV

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to Section II. The first letter references column 5 and the second letter references a maintenance function, column 3, A through K.

b. Remarks. This column lists information pertinents to the maintenance function being performed, as indicated on the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3) Maintenance functions											(4)	(5)
Group no.	Functional group	A Inspect	B Test	C Service	D Adjust	E Aline	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	Tools and equipment	Remarks
15	FRAME													
1501	Frame Assembly													
	Base Assembly, Filter Unit								O					
	Frame Assembly, Filter Unit; Frame Assembly, Slurry Feeder; Brackets, Motor and Pump, Filter	O							O					
18	HULL													
1801	Hull Assemblies													
	Housing Assembly Filter; Housing Assembly, Erdlator	O						O	O	O				
1808	Stowage Racks, Boxes													
	Box Stowage	O						O	O					
	Frame and Strap, Stowage Box	O						O	O	O				
22	ACCESSORY ITEMS													
2202	Accessory Items													
	Cable Assemblies; Rod and Cable, Ground	C						C	O					
2210	Data Plates and Instruction Folders													
	Plates, Warning; Plates, Instruction	C							O					
	Plates, Identification	C							F					

(1)	(2)	(3) Maintenance functions											(4)	(5)
Group no.	Functional group	A Inspect	B Test	C Service	D Adjust	E Aline	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	Tools and equipment	Remarks
40	ELECTRIC MOTORS													
4000	Electric Motors													
	Motor, Slurry Feeder	C	O						O					
	Motor, Agitator; Motor, Filter Pump; Motor, Chemical Feeder	O	O						O	F	F			
4001	Rotors													
	Rotor, Motor, Filter Pump	F	F						F	F				
4002	Stators													
	Stator, Motor, Filter Pump	F	F						F	F	D			A
4004	Ventilating System													
	Fan, Motor, Filter Pump	O							O					
·4005	Frame Support and Housing													
	Base, Slide, Agitator Motor	C			O				O					
	Base, Filter Motor	C							O					
	Bearings, Filter Motor	F							F					
4006	Starting and Protective Devices													
	Starters, Motor: control cabinet; starter, motor: waste water pump	O							O	F				
	Heaters, Starter Motor	O							O					
	Capacitor: chemical solution motor													
4007	Drive Components													
	Chain, Roller; Clutch Assembly	C		C					O	O				
	Coupling, Shaft, Flexible; Bearing Unit	C		C					O					
	Gear Assembly, Speed Decreaser			C					O	F				
	Belt, V; Pulleys	C			C				O					
	Tightener Assembly	C		C	C				O	O				
4009	Control Panel													
	Cabinet Assembly, Control	C							O					
	Wiring Harness	O							F	O				
	Motors, Starter	O							O					
4011	Fuse and Fuseholders													
	Breaker, Circuit, Control Panel; Fuseholders	O							O					
	Fuses	C							C					
4012	Switches	O							O					
4017	Transformer	O							O					
4018	Terminal Blocks, Junction Boxes													
	Board, Terminal; Receptacle Power; Bus Bar; Terminal Block	O							O					
42	ELECTRICAL EQUIPMENT													
4209	Signaling Devices													
	Switch Assembly, Level	C							O	O				
	Buzzer, Low Level Alarm	C	F						O					
4210	Instruments													
	Ammeter; Voltmeter	C	O						O					
4216	Miscellaneous Wiring and Fittings													
	Cable, Electrical	C							O					
	Connectors, Cable	C							O					

(1)	(2)	(3) Maintenance functions											(4)	(5)
Group no.	Functional group	A Inspect	B Test	C Service	D Adjust	E Aline	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	Tools and equipment	Remarks
47	GAGES													
4702	Gages, Mountings, Lines and Fittings													
	Gage, Pressure, Dial Indicating; Gage, Liquid Level Differential	C							O					
	Indicator, Sight Liquid	C							O	O				
51	WATER PURIFICATION SYSTEM													
5101	Hypochlorinator Assembly													
	Feeder, Chemical Solution	C		C	C		D		O	O	D			
	Hose Assemblies	C							O					
	Shafts, Gears	O							F					
5102	Tanks, Containers													
	Feeder Assembly, Slurry	C		C	C				F	F	D			
	Tank, Erdlator	C		C					F	F				
	Boot, Water Tank; Launders; Tank, Waste, Slurry; Bridge Rails; Downcomer Tube	C							O					
	Tank, Waste Water; Tank, Chemical Solution; Tank, Diomite Solution	C		C					O					
	Float, Diomite Tank; Float and Rod: low level alarm; Launder Rod	C			C				O					
	Agitator Assembly	C		C					O	O				
	Drain Assembly; concentrator	C		C	C				O	O				
5103	Piping, Valves													
	Piping; erdlator section; Hose Assemblies	C							O					
	Valve, Controlled, Balanced Valves	C							O	O				
55	PUMPS													
5500	Pump Assembly													
	Pump, Centrifugal	C							O	O				
5501	Shafts, Impellers													
	Impeller, Pump, Centrifugal; Seal, Plain, Encased	O							O					
56	FILTERS AND PURIFIERS													
5600	Water Filter and Purifier Assembly	C		C					O	O				
5601	Relief Valve													
	Valve, Air Release	C							O	F				
5602	Auxiliary Control Valve													
	Control, Rate of Flow, Liquid	C							O	F				
5604	Elements	C		C					O	O				
5605	Common Valves, Lines and Fittings													
	Valve, Plug; Valves, Gate	C							O	O				
	Piping	C							O					
76	FIRE FIGHTING EQUIPMENT COMPONENTS													
7603	Fire Extinguishers	C		C					O					

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

Reference Code	*Maintenance level*	*Nomenclature*	*Tool Number*
		None required	

Section IV. REMARKS

Reference Code	*Remarks*
A-I	Rewind and dipping.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25, Section I (qty rqr block no. 178) organizational maintenance requirements for Water Purification Equipment.

Changes in force: C 1 and C 2

TM 5-4610-205-20
C 2

Change No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC *28 June 1974*

Organizational Maintenance Manual
WATER PURIFICATION UNIT; BASE MOUNTED; 3000 GPH; ELECTRIC MOTOR DRIVEN, AC, 115/208V, 1-3 PHASE, 60 HERTZ (MET-PRO MODEL 3000-2700) FSN 4610-857-0330)

TM 5-4610-205-20, 15 August 1963, is changed as follows:

Cover Page. Title is changed as shown above.
Inside Front Cover. Add the following warnings to the list of safety precautions:

WARNING

Operation of this equipment presents a NOISE HAZARD to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

WARNING

Cleaning solvent, PD-680, is POTENTIALLY DANGEROUS CHEMICAL. Do not use near open flame.

Page 2. Paragraph 1d, the mailing address is changed to Commander, US Army Troop Support Command, ATTN: AMSTS-MPP, 4300 Goodfellow Boulevard, St. Louis, MO 63120.
Page 5. Paragraph 9 is rescinded.
Paragraph 10 is superseded as follows:

10. Installation and Setting-Up Instructions.

a. Location. Refer to TM 5-700 for information to assist in selection of a site for the unit.

(1) Select a site that is level as possible. Avoid sandy, dusty, or muddy locations. There must be sufficient area for locating supporting components of the unit. Locate the unit as close as possible to the raw-water source, preferably within 50 feet.

NOTE

Do not locate the unit below the drainage of a sewer outlet or below a bathing area.

(2) Take advantage of natural barriers that may protect the unit from the elements.

(3) If the unit is to be set up indoors, make sure there is adequate ventilation. Make sure the floor is of sufficient construction to support the weight of the unit and the water storage tanks. Allow sufficient area on all sides of the unit to allow access to the components.

b. Setting-Up. Refer to figure 1.1 and connect the piping and hoses.

(1) Install the hose between the source of raw water and raw water inlet connection at the raw water flow sight glass.

(2) Connect the two filtered effluant pipes leading from the diatomite filter to the waste water tank.

(3) Install the wet-well recirculation and effluent hoses as shown on figure 1.1 (2).

(4) Install the slurry feeder filtered water hose and connect a hose for filtered water to the filtered water effluant pipe connection.

(5) Install the waste water drains.

WARNING

Provide adequate drainage so water will not accumulate around the unit and supporting electrical equipment. Make sure water drains do not flow into source of raw water.

(6) Connect the three 50-foot electrical extension cables to the pumps and the electrical control panel as shown on figure 1.2. Connect the power source connection to the panel.

c. Grounding the Unit. The water treatment section and the filter section are each equipped with ground terminal studs. The ground may be either of the following:

(1) A ground rod 3/4 inch in diameter, if hollow, or 5/8 inch if solid rods driven to a depth of two feet.

(2) A ground plate with a minimum of 9 square feet buried to a depth of at least four feet.

(3) An underground metallic water system.

(4) The ground cable must be No. 6 AWG copper wire, and be bolted or clamped to the grounding device. Connect the other end of the cable to the ground terminal.

WARNING

Do not operate the water purification unit without suitable ground connections. Electrical defects in the load lines or equipment can cause DEATH by electrocution when contact is made with an ungrounded system.

d. Noise Hazard Warning Signs. Signs conforming to the provisions of AR 385-30 will be erected in the area to provide notification of NOISE HAZARD in accordance with TB MED 251. The signs should read:

WARNING

NOISE HAZARD EQUIPMENT
HEARING PROTECTION REQUIRED

Page 3. Figure 1.1 is superseded as follows:

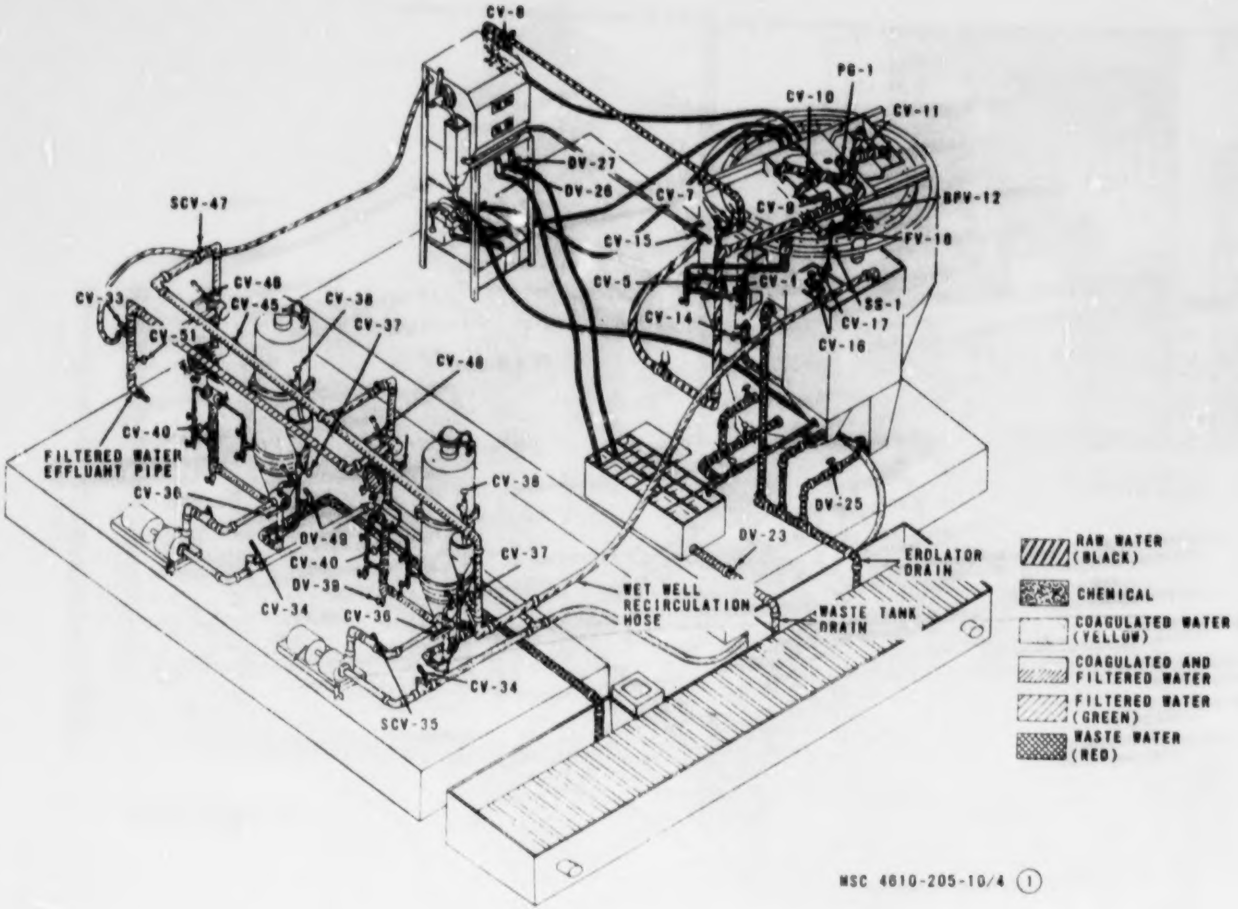

CV-8
PG-1
CV-10
CV-11
DV-27
DV-26
CV-7
CV-9
BFV-12
CV-15
FV-18
CV-5
CV-1
SS-1
CV-14
CV-17
CV-16
SCV-47
CV-48
CV-45
CV-38
CV-33
CV-51
CV-37
CV-48
CV-40
FILTERED WATER EFFLUANT PIPE
CV-38
CV-36
DV-49
CV-40
DV-39
CV-34
CV-36
CV-37
DV-25
DV-23
EROLATOR DRAIN
WET WELL RECIRCULATION HOSE
WASTE TANK DRAIN
CV-34
SCV-35
RAW WATER (BLACK)
CHEMICAL
COAGULATED WATER (YELLOW)
COAGULATED AND FILTERED WATER
FILTERED WATER (GREEN)
WASTE WATER (RED)
MSC 4610-205-10/4 ①

Figure 1-1. Water purification piping and flow diagram (sheet 1 of 2).

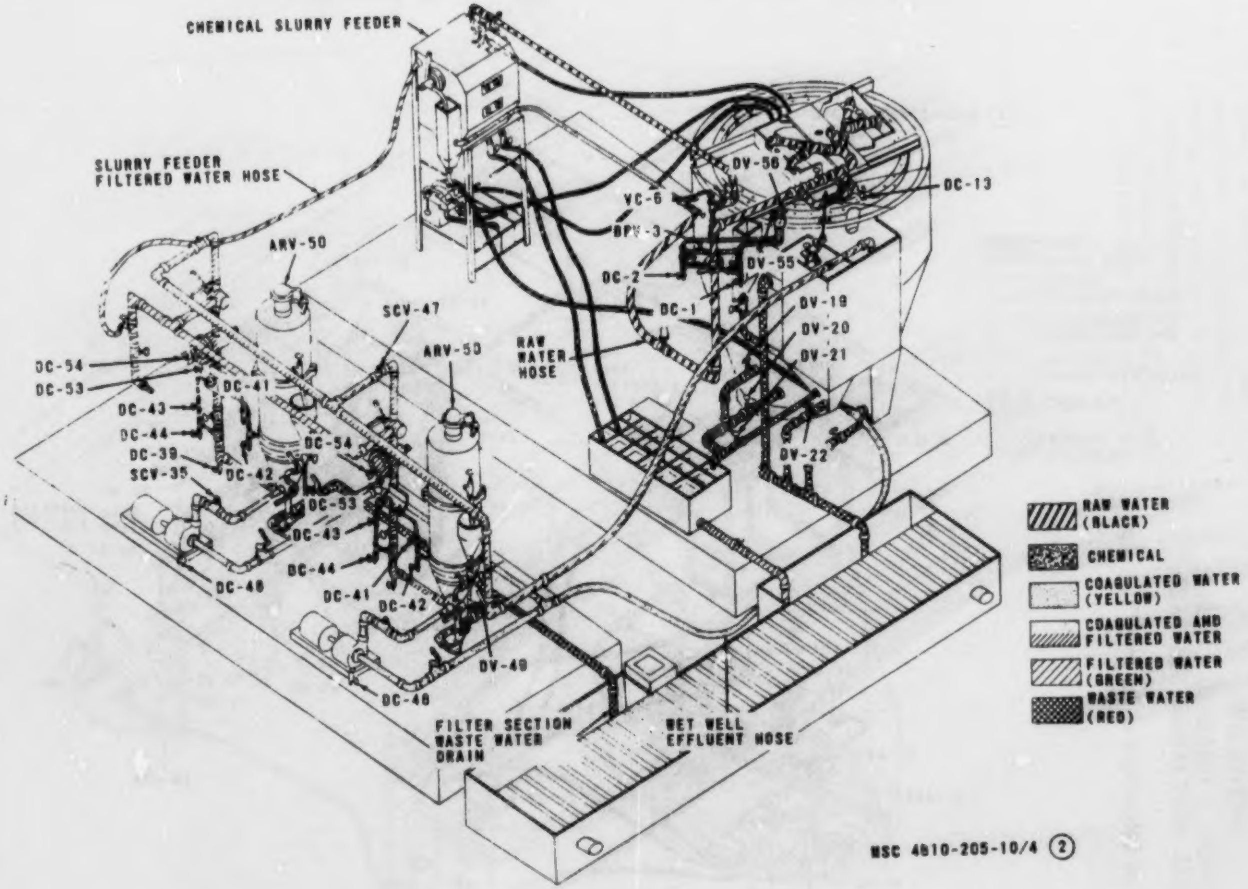
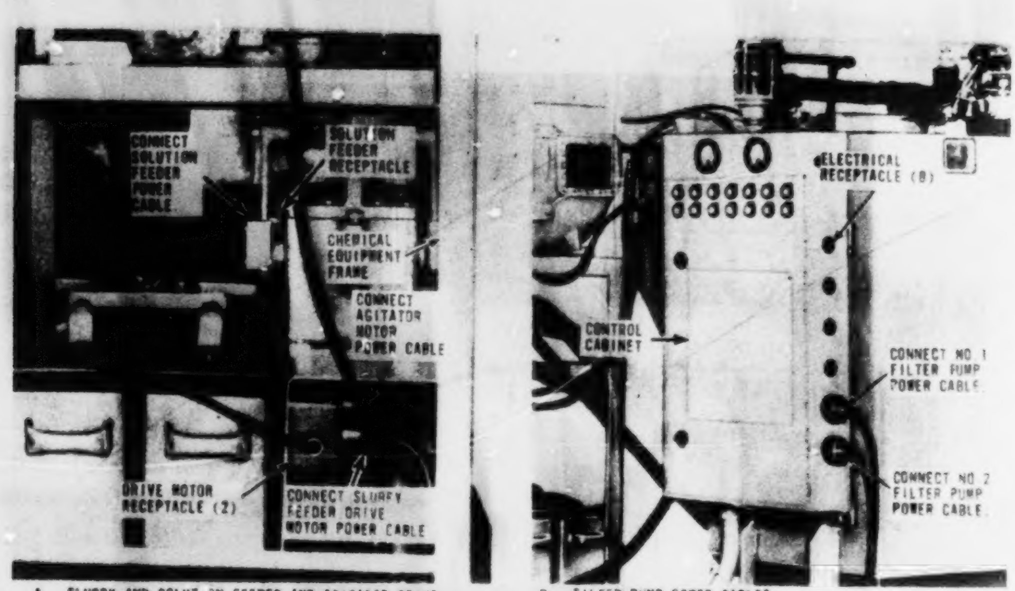

CHEMICAL SLURRY FEEDER
SLURRY FEEDER FILTERED WATER HOSE
ARV-50
SCV-47
ARV-50
RAW WATER HOSE
VC-6
BPV-3
DV-56
DC-13
DC-2
DV-55
DC-1
DV-19
DV-20
DV-21
DV-22
DC-54
DC-53
DC-41
DC-43
DC-44
DC-39
SCV-35
DC-42
DC-54
DC-53
DC-43
DC-44
DC-41
DC-42
DC-48
DV-40
DC-48
FILTER SECTION WASTE WATER DRAIN
WET WELL EFFLUENT HOSE
RAW WATER (BLACK)
CHEMICAL
COAGULATED WATER (YELLOW)
COAGULATED AND FILTERED WATER
FILTERED WATER (GREEN)
WASTE WATER (RED)
MSC 4610-205-10/4 ②

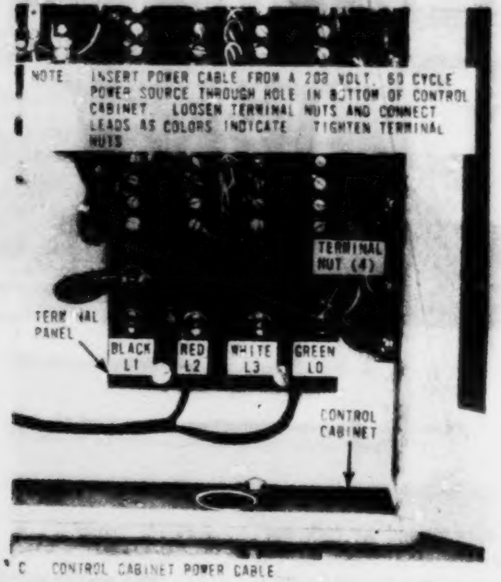
Figure 1.1. Water purification piping and flow diagram (sheet 2 of 2).

Add Figure 1.2.


CONNECT SOLUTION FEEDER POWER CABLE
SOLUTION FEEDER RECEPTACLE
CHEMICAL EQUIPMENT FRAME
CONNECT AGITATOR MOTOR POWER CABLE
DRIVE MOTOR RECEPTACLE (2)
CONNECT SLURRY FEEDER DRIVE MOTOR POWER CABLE
ELECTRICAL RECEPTACLE (8)
CONTROL CABINET
CONNECT NO. 1 FILTER PUMP POWER CABLE.
CONNECT NO. 2 FILTER PUMP POWER CABLE.

A. SLURRY AND SOLUTION FEEDER AND AGITATOR DRIVE MOTOR POWER CABLES

B. FILTER PUMP POWER CABLES


NOTE: INSERT POWER CABLE FROM A 208 VOLT, 60 CYCLE POWER SOURCE THROUGH HOLE IN BOTTOM OF CONTROL CABINET. LOOSEN TERMINAL NUTS AND CONNECT LEADS AS COLORS INDICATE. TIGHTEN TERMINAL NUTS.

TERMINAL NUT (4)
TERMINAL PANEL
BLACK L1
RED L2
WHITE L3
GREEN L0
CONTROL CABINET

C. CONTROL CABINET POWER CABLE

WSC 4810-205-10.5

Figure 1.2. Electrical connections (sheet 1 of 2).

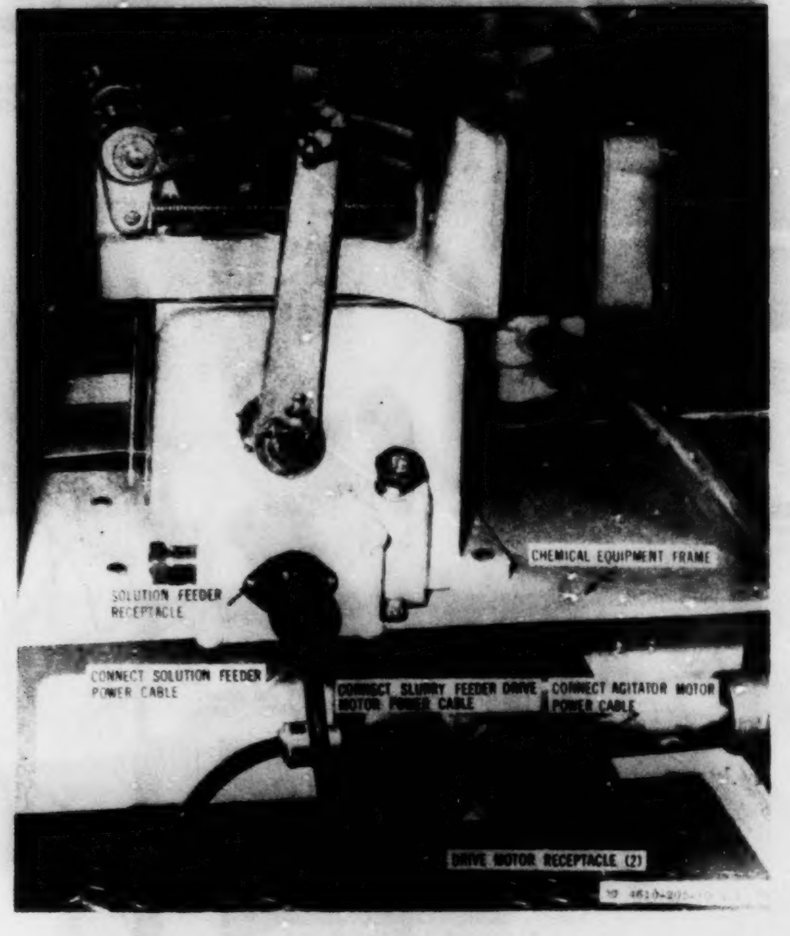

CHEMICAL EQUIPMENT FRAME
SOLUTION FEEDER RECEPTACLE
CONNECT SOLUTION FEEDER POWER CABLE
CONNECT SLURRY FEEDER DRIVE MOTOR POWER CABLE
CONNECT AGITATOR MOTOR POWER CABLE
DRIVE MOTOR RECEPTACLE (2)

Figure 1.2. Electrical connections (sheet 2 of 2).

Page 5. Paragraph 11 is superseded as follows:

11. Dismantling for Movement. *a.* Refer to TM 5-4610-205-10 to drain the water treatment and filter sections.

b. Disconnect and stow all piping, hoses, and electrical cables. Make sure all equipment is clean before stowing. If equipment is to be stored, make sure hoses are air-dried before storing.

c. Use a suitable lifting device to lift the unit onto the carrier. For short distance moves, use a forklift truck.

CAUTION

The water purification unit is not to be moved by skidding or towing. Damage to the wooden base will result.

d. Refer to figure 2 and anchor the effluant launder to prevent damage during shipment.

e. If unit will be exposed to inclement weather during shipment, cover the unit with a paulin and lash it securely.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-25A (qty rqr block No. 178) Organizational Maintenance requirements for Water Purification Unit.

TM 5–4610–205–20

TECHNICAL MANUAL
No. 5–4610–205–20

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *15 August 1963*

ORGANIZATIONAL MAINTENANCE MANUAL

WATER PURIFICATION UNIT: BASE MOUNTED: ELECTRIC DRIVEN, AC, 120/208-VOLT, SINGLE-PHASE AND 3-PHASE, 60-CYCLE: 3,000 GALLONS PER HOUR (MET–PRO MODEL 3000–2700A) FSN 4610–857–0330

Paragraph Page

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II. Movement to a new worksite 11, 12 5

CHAPTER 3. MAINTENANCE INSTRUCTIONS

Section I. Special tools and equipment 13, 14 7
II. Preventive maintenance services 15, 16 7
III. Troubleshooting 17–27 10
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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of the personnel to whom the water purification unit is issued. They provide information on organizational maintenance of the equipment, its accessories, and auxiliaries. This manual also includes instructions for shipment and limited storage.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the maintenance allocation chart. The organizational maintenance repair parts and special tool lists are in TM 5–4610–205–20P.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. Report all deficiencies in this manual on DA Form 2028. Submit recommendations for changes, additions, or deletions to the Commanding Officer, U.S. Army Mobility Support Center, ATTN: SMOMS–MM, P.O. Box 119, Columbus, Ohio 43216. Direct communication is authorized.

e. Report all equipment improvement recommendations as prescribed in TM 38–750.

2. Record and Report Forms

a. DA Form 2258 (Depreservation Guide of Engineer Equipment).

b. For other record and report forms applicable to organizational maintenance, refer to TM 38–750.

Note. Applicable forms, excluding Standard Form 46 which is carried by the operator, will be kept in a canvas bag and mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

TM 5–4610–205–10 provides a general description of the water purification unit. Specific and detailed descriptions of the components of the water purification unit are provided in the applicable maintenance paragraphs of this manual.

4. Identification and Tabulated Data

a. Identification. Descriptions and locations of identification plates on the water purification unit are listed in TM 5–4610–205–10.

b. Tabulated Data.

(1) *Erdlator.*

Manufacturer	Met–Pro, Inc.
Model	ER 3000A
Capacity	930 gal.

(2) *Slurry feeder.*

Manufacturer	Met–Pro, Inc.
Type	2-compartment
Model	SF 3000A

(3) *Agitator drive motor.*

Manufacturer	Howell Electric Motor Co.
Type	KC
Horsepower	⅓
Phase	3
Cycle	60
Speed	1,725 rpm (revolutions per minute)
Volts	208

(4) *Agitator speed reducer.*

Manufacturer	Janette Electric Manufacturing Co.
Model	SL 200
Service factor	1.0
Horsepower	1.25

Ratio	12.34 to 1
Torque	400 lb. per in. (pounds per inch)
Input rpm	1,800
Output rpm	146

(5) *Slurry feeder drive motor.*

Manufacturer	Howell Electric Manufacturing Co.
Horsepower	¼
Type	CIT
Phase	3
Cycle	60
Speed	1,725 rpm
Volts	208
Amps	1.3
Temperature rise	55°C.
Service factor	1.0

(6) *Slurry feeder speed reducer.*

Manufacturer	Janette Electric Manufacturing Co.
Model	WI
Input rpm	1,725
Output rpm	29
Service factor	1.0
Ratio	60 to 1
Output torque	918

(7) *Chemical solution feeder.*

Manufacturer	Met–Pro, Inc.
Model	KM 600A
Volts	115
Amperes	0.85
Cycle	60
Phase	1
Oil capacity	5 quarts
Type	Dual diaphragm pump
Motor	Immersed in oil

(8) *Flow controller valves CV–45.*

Manufacturer	Met–Pro, Inc.
Model	FC 1500A
Size	1½ in.
Flow range	0 to 30 gpm (gallon per minute)

(9) *Raw water bypass float valve.*

Manufacturer	Schade Valve Manufacturing Co.
Material	Bronze
Type	87
Size	1½ in.
Working pressure	100 lb.

(10) *Filter pumps.*

Manufacturer	Carver Pump Co.
Type	1¼ ML
Size	1¼ x 1½–7
Capacity	25 gpm at 115 ft head

(11) *Filter pump motors.*

Manufacturer	Doerr Electrical Co.
Horsepower	2
Phase	3
Cycle	60
Speed	3,450 rpm
Volts	208

(12) *Slurry feeder clutch.*

Manufacturer	The Hilliard Corp.
Torque	25 ft-lb.
Stock bore	⅞ in.
Overall dimensions	4¾ in.

(13) *Slurry feeder chain tightener.*

Manufacturer	Met–Pro, Inc.
Sprocket teeth	18
Pitch	½ in.
Bore	1 in.

(14) *Alarm transformer.*

Manufacturer	Jefferson Electric Co.
Type	115
Size	3 in.
Primary voltage	115
Secondary voltage	12
Cycle	60

(15) *Motor contactors.*

Manufacturer	General Electric Co.
Type	CR 106B022BCA
Class	2
Size	0
Voltage	120/208
Phase	1 and 3
Cycle	60

(16) *Electrical receptacle connectors.*

Manufacturer	Harvey Hubbell
Type	Twist locking
Current	Alternating
Amperes	10
Maximum volts	208

(17) *Nut and bolt torque data.*

Size of nut or bolt	*Torque (ft-lb)*
¼–20	7–9
¼–28	8–10
5/16–18	13–17
5/16–24	15–19
⅜–16	30–35
9/16–12	90–100
9/16–18	107–117
⅝–11	137–147
⅝–18	168–178
¾–10	240–250

(18) *Wiring diagram* (fig. 1).

5. Differences in Models

This manual covers only the Met-Pro Water Purification Unit Model 3000–2700A. No known unit differences exist for the model covered in this manual.

Figure 1. Practical wiring diagram.
(Located in back of manual)

CHAPTER 2

INSTALLATION AND OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. Unloading the Equipment

a. Unloading by Ramp. Block the wheels of the carrier and construct a suitable ramp at the unloading end of the carrier. Use rollers, if available, or slide the equipment off the carrier and down the ramp.

b. Unloading by Crane. Place a sling around each end of the crated unit and remove it from the bed of the carrier using a suitable lifting device.

***Warning:* When lifting the crated unit, be sure that the lifting device has a capacity of at least 6,000 pounds. Do not allow the unit to swing while suspended. Failure to observe this warning may result in damage to the unit or severe injury to personnel.**

7. Unpacking the Equipment

a. General. The water treatment and filter sections are inclosed by separate shipping crates. Do not destroy these crates.

Note. Do not damage the shipping crates when unpacking the equipment. These shipping crates are to be utilized in the event of shipment of the water purification unit.

b. Unpacking. Remove the lag bolts that secure the sides and ends to the top of the shipping crate and remove the top using a suitable lifting device. Remove the lag bolts that secure the sides to the ends and base and remove the sides.

***Warning:* When removing the shipping crate from the unit, remove the lag bolts from one side or end at a time and remove sides and ends individually to avoid injury to personnel or damage to the equipment.**

c. Depreservation. Prepare the water purification unit for inspection and operation outlined on DA Form 2258, attached on or near the operational controls.

8. Inspecting and Servicing Equipment

a. General. Inspect the packing list and make sure that all equipment listed has been received. Examine the identificaton plates for positive identification of the units. Refer to TM 5-4610-205-10 for servicing equipment.

b. Control Cabinet. Open the control cabinet door and make a visual inspection to see that all components are securely mounted. Inspect for loose electrical connections, damaged wiring insulation, and other defects.

c. Agitator and Slurry Feeder Drive Motors. Turn the drive motors by hand to make sure that they operate freely. Inspect for loose mounting, loose electrical connections, and damaged wiring insulation.

d. Agitator and Slurry Feeder Speed Reducers. Inspect the speed reducers for loose mounting, binding, and oil leaks.

e. Piping, Hoses, and Valves. Inspect the piping, hoses, and valves for insecure mounting, cracks, breaks, and deterioration. Operate the valves to see that they do not bind.

f. Slurry and Solution Feeders. Inspect the slurry and solution feeders for insecure mounting, loose hoses and electrical connections, and freedom of operation.

g. Gages and Meters. Inspect all gages and meters for insecure mounting, cracked or broken glass, and loose connections.

h. Erdlator Tank and Agitator. Inspect the erdlator tank for cracks, breaks, and other damage. Inspect the agitator for bent or broken disks, binding, or other defects. Inspect the wet well float linkage for bent float rod and defective float.

i. Diatomite Filters. Inspect the filters for cracks, breaks, and damaged or missing components. Inspect the filters and components for insecure mounting and loose connections.

j. Filter Pumps. Inspect the filter pumps for loose mounting, cracks and breaks, and loose electrical connections. Turn the pumps by hand to make sure they are not binding.

9. Installation of Separately Packed Components

Refer to TM 5-4610-205-10 and install the low water level warning light, filter element sleeves, and waste water drain piping.

10. Installation and Setting-Up Instructions

a. General. The water purification unit is a semipermanent unit that can be installed indoors or outdoors.

b. Location.

(1) Refer to TM 5-700 to aid in selecting a site for the unit.

(2) Select a site that is level as possible. Avoid sandy, dusty, or muddy locations.

(3) See that sufficient area is available for locating the various supporting components of the water purification unit.

(4) Take advantage of natural barriers that may protect the unit from the elements.

(5) Locate the unit as close as possible to the source of raw water; preferably not more than 50 feet away.

c. Indoor Installation.

(1) If the unit is to be housed within an inclosure, make sure that adequate ventilation is available.

(2) Inspect the floor of the inclosure, if applicable, to make sure it is of sufficient construction to support the weight of the unit.

(3) Provide adequate space around all components to allow easy access.

d. Grounding. Refer to TM 5-4610-205-10 for grounding instructions.

e. Hoses and Electrical Connections. Refer to TM 5-4610-205-10 for installation of hoses and making electrical connections.

Section II. MOVEMENT TO A NEW WORKSITE

11. Dismantling for Movement

a. Preparation.

(1) Refer to figure 2 and anchor the effluent launder to prevent damage during shipment.

(2) Refer to TM 5-4610-205-10 for further preparation of the unit for movement.

b. Movement.

(1) Move a suitable lifting device into position and lift the unit to the bed of a carrier.

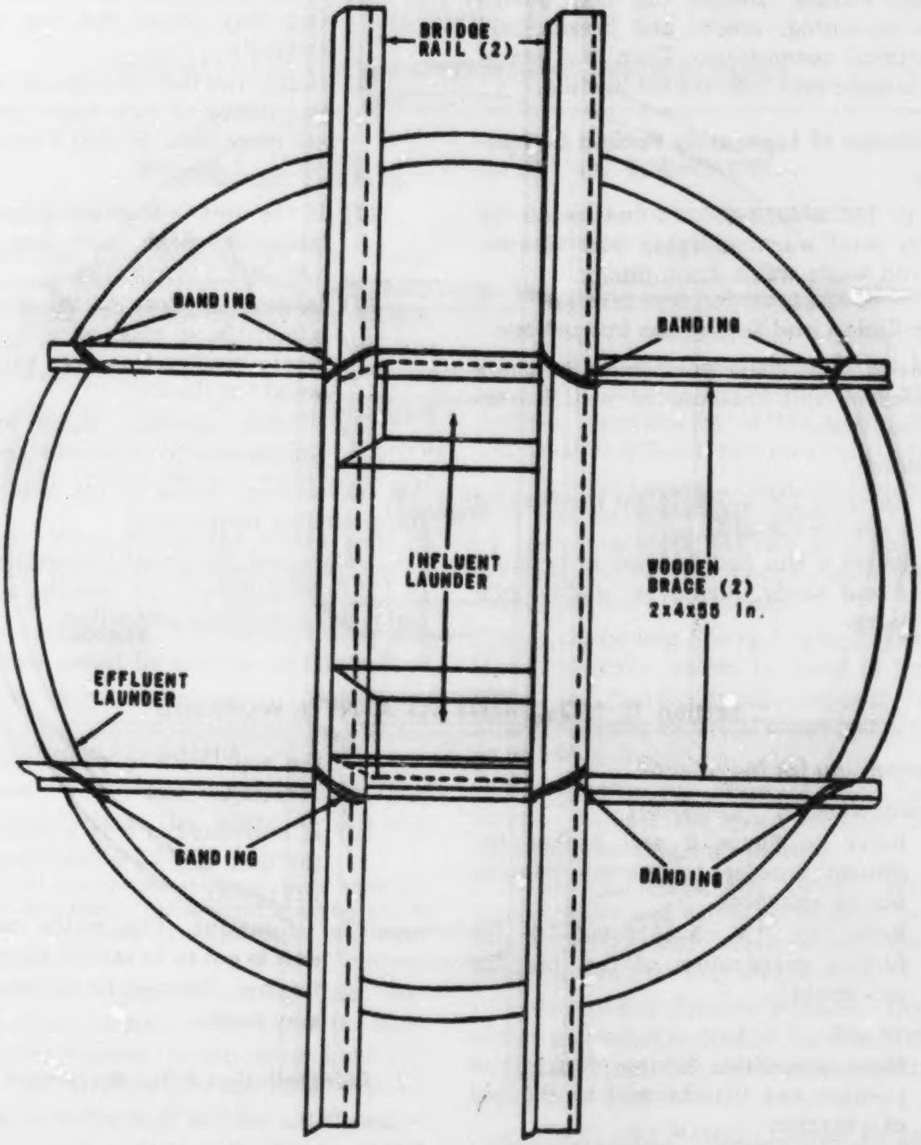
(2) If the unit will be exposed to inclement weather during shipment, cover the unit with a paulin and lash it securely.

(3) If movement is only a short distance, the unit may be moved using a forklift truck.

Caution: **The water purification unit is not to be moved by skidding or towing. Damage to the wooden base may result.**

12. Reinstallation After Movement

Install the unit as instructed in paragraphs 6 through 10. For further instructions, refer to TM 5-4610-205-10.


BRIDGE RAIL (2)
BANDING
BANDING
INFLUENT LAUNDER
WOODEN BRACE (2) 2x4x55 in.
EFFLUENT LAUNDER
BANDING
BANDING

NOTE: POSITION WOODEN BRACES BETWEEN BRIDGE RAILS AND EFFLUENT LAUNDER SECURE WITH STEEL BANDING.

NSC 4610-205-20/2

Figure 2. Effluent launder, anchoring.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

13. Special Tools and Equipment

No special tools or equipment are required by organizational maintenance personnel to perform maintenance on the water purification unit.

14. Organizational Maintenance Repair Parts

Organizational maintenance repair parts are listed and illustrated in TM 5-4610-205-20P.

Section II. PREVENTIVE MAINTENANCE SERVICES

15. General

To insure that the water purification unit is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in paragraph 16. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded, together with the corrective action taken, on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) at the earliest possible opportunity.

16. Quarterly Preventive Maintenance Services

a. This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by organizational maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months, or 250 hours of operation, whichever occurs first.

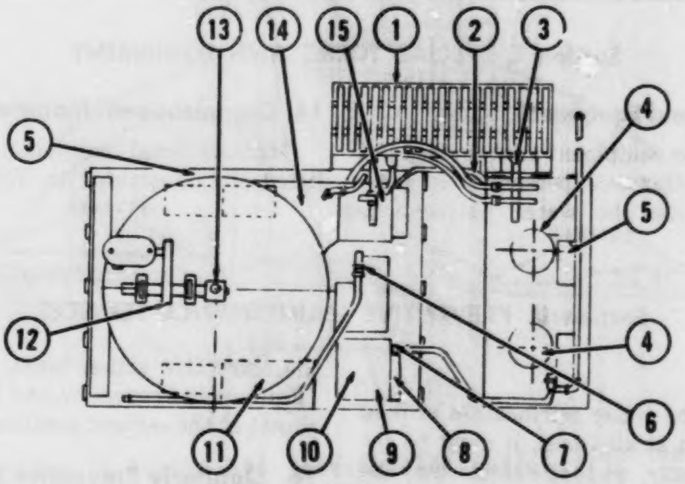
b. The item numbers are listed consecutively and indicate the sequence of minimum requirements. Refer to figure 3 for the quarterly preventive maintenance services.

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM5-4610-205-20 WATER PURIFICATION UNIT

MET-PRO MODEL 3000-2700A



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	**DRAIN TANK ASSEMBLY.** Replace an unserviceable vent tube, strainer, or lever control switch.	85
2	**POWER CABLES.** Repair or replace damaged or unserviceable power cables.	
3	**HOSES, PIPES, AND VALVES.** Repair or replace leaking, damaged, or unserviceable components.	
4	**FILTER ASSEMBLIES.** Replace unserviceable filters.	83
5	**GROUND LUG AND WIRE CLAMP.** Replace unserviceable components.	
6	**SIGHT GLASS.** Clean dirty glass. Replace a broken or damaged sight glass.	
7	**DIATOMITE DILUTION TANK, NEEDLE VALVE, AND SEAT.** Clean or replace needle valve and seat, if necessary.	67
8	**DRIVE CHAIN, SPROCKETS,CLUTCH, AND CHAIN TIGHTENER.** Adjust, repair, or replace a loose or unserviceable chain or sprokets. Adjust the clutch. Repair or replace an unserviceable chain tightener.	62 63
9	**SLURRY FEEDER, PULLEYS, AND BELT.** Adjust pulley alignment. Replace frayed or cracked belt. Proper belt adjustment is a deflection of 1/2 to 1 inch midway between pulleys.	68

Figure 3. Quarterly preventive maintenance services.

ITEM		PAR REF
10	**CHEMICAL SOLUTION EQUIPMENT.** Replace a chemical pump diaphragm if necessary.	60
11	**ERDLATOR.** Check for damage. Tighten loose mounting.	
12	**AGITATOR MOTOR PULLEYS AND DRIVE BELT.** Replace an excessively worn, frayed, or cracked drive belt. Proper belt adjustment is a deflection of 1 inch midway between pulleys. Align pulleys if necessary.	46
13	**SPEED REDUCER, SHAFT, AND BEARINGS.** Replace a faulty shaft or bearings. Align bearings and shaft as necessary. Replace an unserviceable drive belt. Proper belt adjustment is a deflection of 1 inch midway between pulleys.	47
14	**LOW WATER ALARM FLOAT, VALVE, AND SWITCH.** Align and adjust if necessary.	
15	**LOW WATER ALARM LIGHT AND BUZZER.** Replace a faulty lamp or buzzer.	
	NOTE 1. OPERATIONAL TEST. During operational test, observe for any unusual noise vibration, or leaks.	
	NOTE 2. ADJUSTMENTS. Make all necessary adjustments during operational test.	
	NOTE 3. CONTROLS AND INSTRUMENTS. Tighten loose mountings. Replace damaged controls and/or instruments. With the unit operating, check for proper operation. Normal operating readings for instruments are as follows: Aspirator manifold pressure gage — 10-15 psig Influent filter pump pressure gage — 0-65 psig Effluent filter pump pressure gage — 0-65 psig Raw water influent flow indicator — 50 gpm Voltmeter — 208 volts Ammeter — Indicates load current.	

MSC 4610-205-20/3

Figure 3—Continued.

Section III. TROUBLESHOOTING

17. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the water purification unit and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance will be reported to field maintenance, 3d echelon.

18. Agitator and Slurry Feeder Drive Motors Will Not Operate

Probable cause	*Possible remedy*
Defective electrical cable	**Replace cable (pars. 46 and 68).**
Defective start or stop switch	**Replace switch (par. 37).**
Defective motor contactor	**Replace contactor (par. 39).**
Defective relay heater	**Replace heater (par. 39).**
Defective receptacle connector	**Replace connector (par. 70).**
Defective drive motor	**Replace motor (pars. 46 and 68).**

19. Low Water Level Warning System Will Not Operate

Probable cause	*Possible remedy*
Silencing switch defective	**Replace switch (par. 35).**
Sensing switch defective	**Replace switch (par. 55).**

20. Chemical Solution Feeder Inoperative

Probable cause	*Possible remedy*
Electrical cable defective	**Replace cable (par. 68).**
Receptacle connector defective	**Replace connector (par. 70).**
Defective stop or start switch	**Replace switch (par. 37).**
Valve dirty or worn	**Clean or replace valve (par. 60).**
Diaphragm defective	**Replace diaphragm (par. 60).**
Solution feeder defective	**Replace solution feeder (par. 59).**

21. Chemical Slurry Feeder Will Not Operate

Probable cause	*Possible remedy*
Slurry feeder drive motor inoperative	**See paragraph 18.**
Clutch out of adjustment or defective	**Adjust or replace clutch (par. 63).**
Speed reducer inoperative	**See paragraph 23.**

22. Erdlator Agitator Runs Noisy or Will Not Run

Probable cause	*Possible remedy*
Drive shaft bearings defective	**Replace bearings (par. 47).**
Flexible coupling worn or defective	**Replace flexible coupling (par. 47).**
Speed reducer defective	**Replace speed reducer (par. 48).**

23. Speed Reducer Runs Noisy or Will Not Run

Probable cause	*Possible remedy*
Speed reducer incorrectly alined	**Aline speed reducer (par. 48).**
Speed reducer defective	**Replace speed reducer (par. 48).**

24. Filter Pump Fails To Deliver Sufficient Water

Probable cause	*Possible remedy*
Electrical cable defective	**Replace cable (par. 75).**
Air leak on suction side of filter pump	**Stop leak as necessary.**
Filter pump defective	**Replace pump (par. 75).**

25. Filter Will Not Hold Pressure

Probable cause	*Possible remedy*
Defective filter housing cover gasket	**Replace gasket (par. 83).**

Probable cause	*Possible remedy*
Defective window gasket	Replace gasket (par. 83).
Filter housing cover or housing defective	Replace housing cover or housing as necessary (par. 83).
Defective gage	Replace gage (par. 78).

26. Filter Pressure Gage Shows Incorrect or No Reading

Probable cause	*Possible remedy*
Gage line restricted or defective	Remove restriction or replace line (par. 78).
Air lock in gage line	Bleed gage line.
Defective gage	Replace gage (par. 78)

27. Air Release Valve Inoperative

Probable cause	*Possible remedy*
Air line restricted	Remove restriction.
Defective air release valve	Replace valve (par. 82).

Section IV. FIELD EXPEDIENT REPAIRS

28. Field Expedient Repairs

Organizational maintenance troubles may occur while the water purification unit is operating in the field where supplies and repair parts are not available and normal corrective action cannot be performed. When this condition exists, the following expedient repairs may be used in emergencies, upon the decision of the unit commander. Equipment so repaired must be removed from operation as soon as possible and properly repaired before being placed in operation again.

29. Voltmeter Does Not Indicate Voltage

Trouble	*Expedient remedy*
Voltmeter defective	Disconnect the leads from the rear of the voltmeter and tape them separately. Operate the unit without the voltmeter (par. 41).

CHAPTER 4

WATER TREATMENT SECTION MAINTENANCE INSTRUCTIONS

Section I. CONTROL CABINET

30. General

The control cabinet is located on the front of the sludge concentrator tank. It houses the controls and instruments necessary for operation of the water purification unit. This section contains information necessary to perform maintenance on those components of the control cabinet that are the responsibility of 2d echelon.

Warning: **Make sure that all electrical power is disconnected from the control cabinet before performing maintenance on the water purification unit electrical system.**

31. Control Cabinet Door Latches

a. Removal. Refer to figure 4 and remove the control cabinet door latches.

b. Cleaning and Inspection.

(1) Wash the latches in an approved cleanin solvent and dry thoroughly.

(2) Inspect the latches for cracks, breaks, broken springs, or other damage.

(3) Replace a defective latch.

c. Installation. Refer to figure 4 and install the control cabinet door latches.

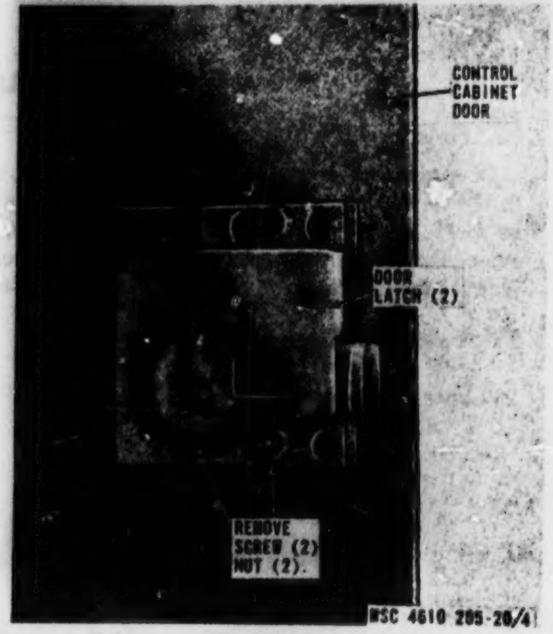


Figure 4. Control cabinet door latches, removal and installation.

32. Low Water Level Alarm Light

(1) Remove the lamp from the low water level alarm light TM 5-4610-205-10.

(2) Refer to figure 5 and remove the low water level alarm light.

b. Cleaning and Inspection.

(1) Wipe all parts free of dirt and grease with a clean cloth dampened in an approved cleaning solvent.

(2) Inspect for cracks, breaks, defective electrical contacts, and damaged threaded components.

(3) Replace all defective parts.

c. Installation.

(1) Refer to figure 5 and install the low level alarm light.

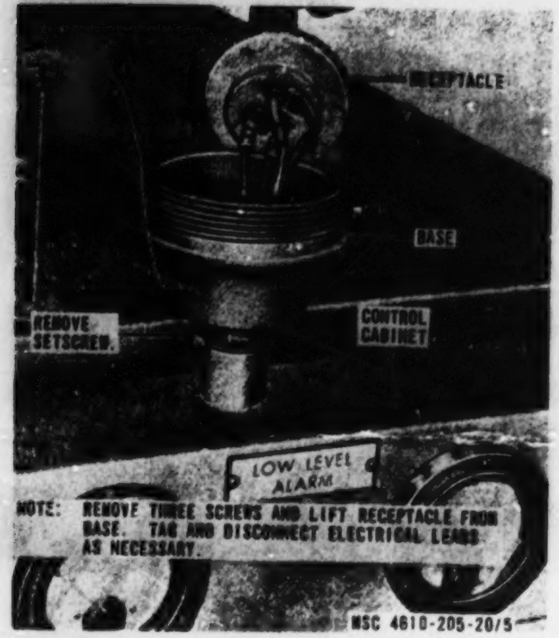
(2) Install the low water level alarm light lamp. TM 5-4610-205-10.

33. Low Water Level Alarm Buzzer

a. Removal. Refer to figure 6 and remove the low water level alarm buzzer.

b. Cleaning and Inspection.

(1) Wipe the buzzer free of dirt and grease using a dry cloth.



NOTE: REMOVE THREE SCREWS AND LIFT RECEPTACLE FROM BASE. TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.

MSC 4610-205-20/5

Figure 5. Low water level alarm light, removal and installation.

(2) Inspect the buzzer for cracks, breaks, and damaged wiring insulation.

(3) Replace a defective buzzer.

c. Installation. Refer to figure 6 and install the low water level alarm buzzer.

34. Alarm Transformer

a. Removal. Refer to figure 6 and remove the alarm transformer.

b. Cleaning and Inspection.

(1) Wipe the transformer free of dirt with a clean dry cloth.

(2) Inspect the transformer for evidence of having been overheated and damaged insulation.

(3) Use a multimeter and test the transformer for continuity.

(4) Replace a defective transformer.

c. Installation. Refer to figure 6 and install the alarm transformer.

35. Alarm Silence Switch

a. Removal. Refer to figure 7 and remove the alarm silence switch.

b. Cleaning and Inspection.

(1) Wipe the switch clean with a clean dry cloth.

(2) Inspect the switch for cracks, breaks, broken terminals, and defective operation.

(3) Replace a defective switch.

c. Installation. Refer to figure 7 and install the alarm silence switch.

36. Stop and Start Buttons

a. Removal. Refer to figure 8 and remove the stop and start buttons.

b. Cleaning and Inspection.

(1) Wipe all parts free of dirt with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the buttons for cracks, breaks, and defective springs.

(3) Replace a defective stop or start button.

c. Installation. Refer to figure 8 and install the stop and start buttons.

d. Solution Feeder Start Button Lock-In Adjustment. The start button, when properly adjusted, will lock in the start position. Depressing the stop button will allow the start button to return to the out position. Adjust the start button lock-in as described in figure 8.

37. Stop and Start Switches

a. Removal. Refer to figure 9 and remove the stop and start witches.

b. Cleaning and Inspection.

(1) Wipe the switches clean with a dry, clean cloth.

(2) Inspect the switches for cracks, broken terminals, and defective spring action.

(3) Replace a defective switch.

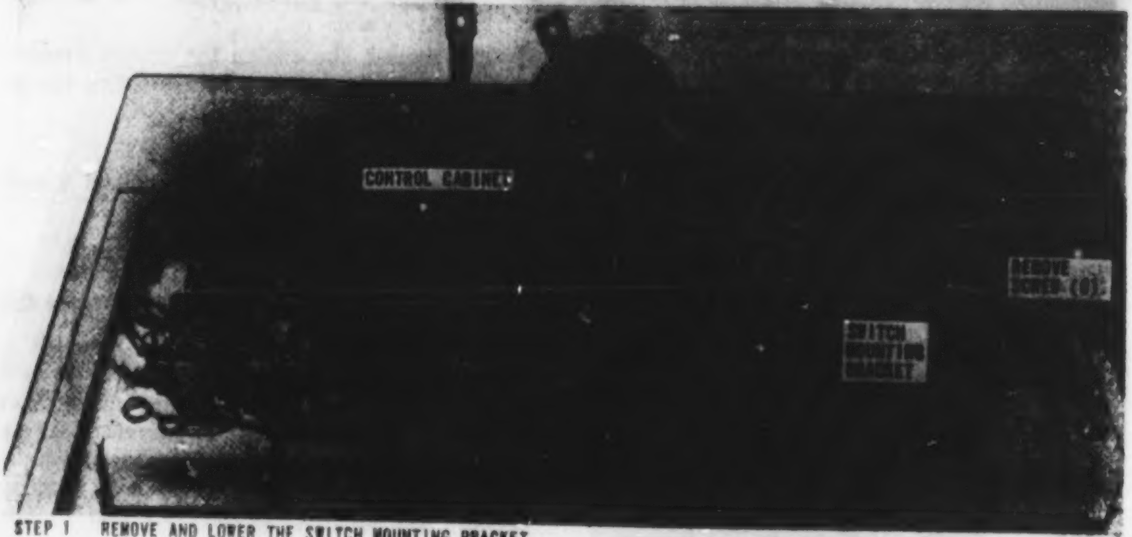
c. Installation. Refer to figure 9 and install the stop and start switches.

38. Fuse Holder

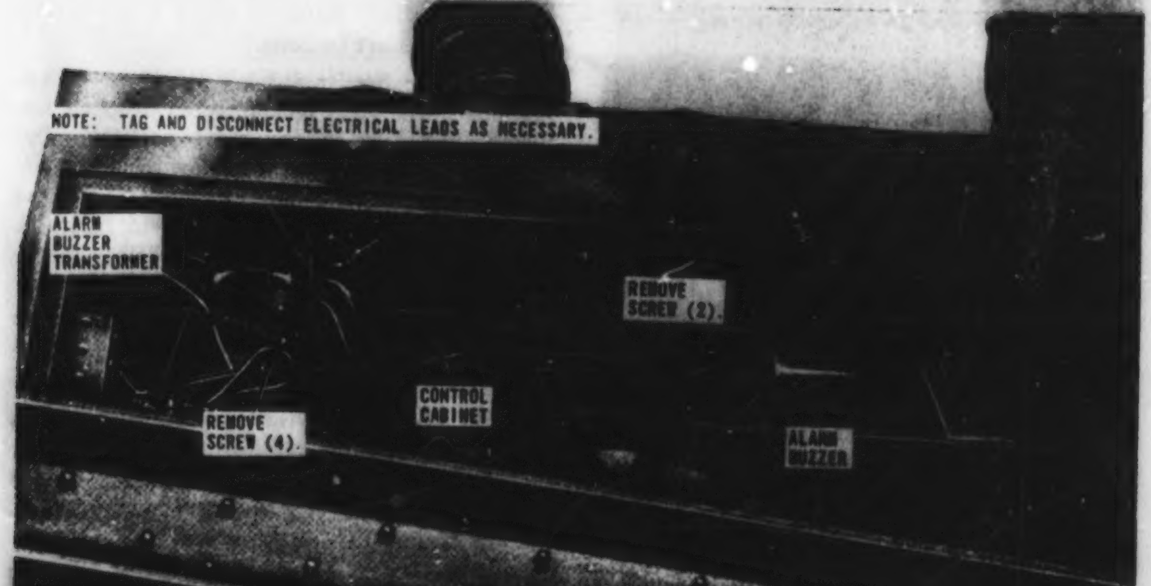
a. Removal. Refer to figure 10 and remove the fuse holder.

b. Cleaning and Inspection.

(1) Wipe the fuse holder clean with a dry, clean cloth.


CONTROL CABINET
REMOVE SCREW ([illegible]).
SWITCH MOUNTING BRACKET

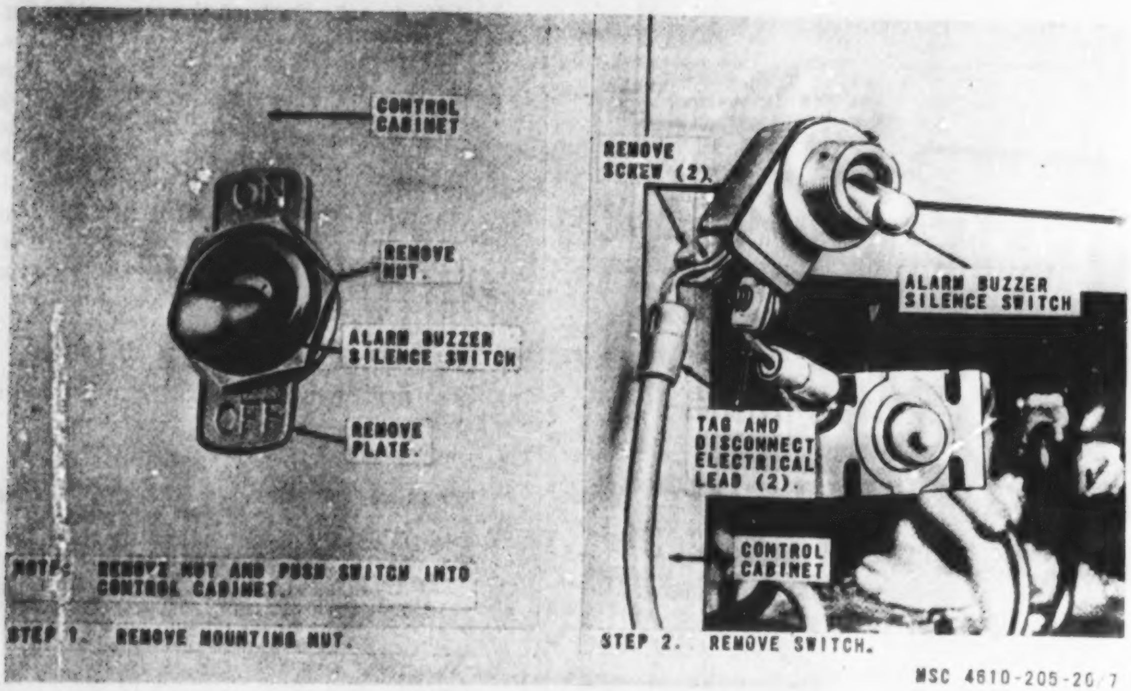
STEP 1 REMOVE AND LOWER THE SWITCH MOUNTING BRACKET.


NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.
ALARM BUZZER TRANSFORMER
REMOVE SCREW (2).
CONTROL CABINET
REMOVE SCREW (4).
ALARM BUZZER

STEP 2. REMOVE BUZZER AND TRANSFORMER.

MSC 4610-205-20/6

Figure 6. Low water level alarm buzzer transformer, removal and installation.


CONTROL CABINET
ON
REMOVE NUT.
ALARM BUZZER SILENCE SWITCH
OFF
REMOVE PLATE.
STEP 1. REMOVE MOUNTING NUT.
REMOVE SCREW (2).
ALARM BUZZER SILENCE SWITCH
TAG AND DISCONNECT ELECTRICAL LEAD (2).
CONTROL CABINET
STEP 2. REMOVE SWITCH.

NOTE: REMOVE NUT AND PUSH SWITCH INTO CONTROL CABINET.

MSC 4610-205-20/7

Figure 7. Alarm silence switch, removal and installation.

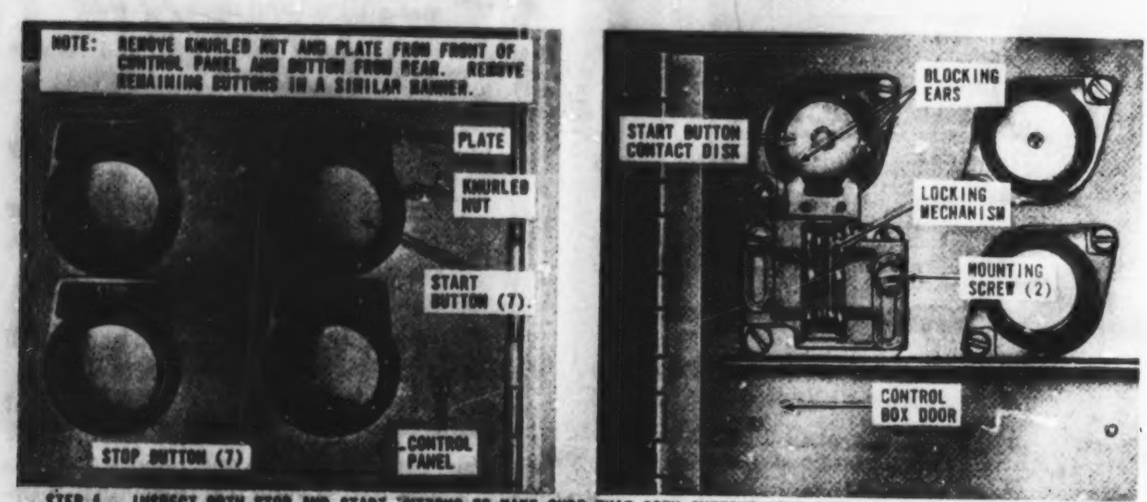


PLATE
KNURLED NUT
START BUTTON (7).
STOP BUTTON (7)
CONTROL PANEL
START BUTTON CONTACT DISK
BLOCKING EARS
LOCKING MECHANISM
MOUNTING SCREW (2)
CONTROL BOX DOOR

NOTE: REMOVE KNURLED NUT AND PLATE FROM FRONT OF CONTROL PANEL AND BUTTON FROM REAR. REMOVE REMAINING BUTTONS IN A SIMILAR MANNER.

STEP 1. INSPECT BOTH STOP AND START BUTTONS TO MAKE SURE THAT BOTH BUTTONS HAVE 2 METAL SHIMS AND 1 RUBBER SEAL INSTALLED ON THE CONTROL BOX SIDE OF DOOR.

STEP 2. LOOSEN MOUNTING SCREWS THAT SECURE LOCKING MECHANISM TO REAR OF STOP BUTTON. POSITION BLOCKING EARS SO THAT WHEN START BUTTON IS DEPRESSED, BLOCKING EARS MOVE IN BEHIND BLOCKING DISK TO BLOCK BUTTON IN ON POSITION.

STEP 3. WHEN STOP BUTTON IS DEPRESSED, BLOCKING EARS SHOULD LOWER TO ALLOW DISK TO MOVE TO OFF POSITION.

STEP 4. WITH START BUTTON IN OFF POSITION, BLOCKING EARS SHOULD RIDE AGAINST LOWER SIDE OF DISK, SO THAT START BUTTON CAN BE DEPRESSED WITHOUT FIRST DEPRESSING STOP BUTTON.

STEP 5. WHEN PROPER ADJUSTMENT IS ATTAINED, TIGHTEN MOUNTING SCREWS.

MSC 4610-205-20/8

Figure 8. Stop and start buttons, removal and installation and lock-in adjustment.

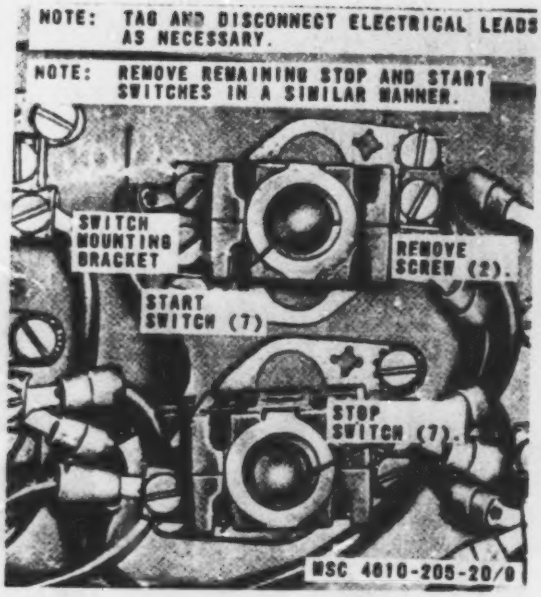

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.
NOTE: REMOVE REMAINING STOP AND START SWITCHES IN A SIMILAR MANNER.
SWITCH MOUNTING BRACKET
REMOVE SCREW (2).
START SWITCH (7)
STOP SWITCH (7).
MSC 4610-205-20/9

Figure 9. Stop and start switches, removal and installation.

(2) Inspect the fuse holder for cracks, breaks, and broken clips.

(3) Replace a defective fuse holder.

c. Installation. Refer to figure 10 and install the fuse holder.

39. Motor Contactors, Overload Relays, and Relay Heaters

a. Removal. Refer to figure 11 and remove the motor contactors, overload relays, and relay heaters.

b. Cleaning and Inspection.

(1) Clean all parts with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the heaters for broken wire and insulation.

(3) Inspect the starters and relays for cracks, breaks, and loose or broken terminals.

(4) Replace a defective starter, relay, or heater.

c. Installation. Refer to figure 11 and install the relay heaters, overload relays, and motor contactors.

d. Adjustment. Each of the six motor contactors are equipped with two overload relays. These relays contain adjustment dials for plus or minus 15 percent field adjustment of tripping current. The purpose of the adjustment is to eliminate nuisance tripping during hot weather. For operation during normal weather conditions, the dials should be set on 100. In the event of frequent tripping during hot weather, turn the adjustment dial clockwise just past the point where the relay trips.

40. Ammeter

a. Removal. Refer to figure 12 and remove the ammeter.

b. Cleaning and Inspection.

(1) Clean the ammeter with a dry, clean cloth.

(2) Inspect the ammeter for cracked or broken case, clouded glass, and loose or broken terminals.

(3) Replace a defective ammeter.

c. Installation. Refer to figure 12 and install the ammeter.

41. Voltmeter

a. Removal. Refer to figure 12 and remove the voltmeter.

b. Cleaning and Inspection.

(1) Clean the voltmeter with a clean, dry cloth.

(2) Inspect the voltmeter for cracked or broken glass, damaged case, and loose, broken, or corroded terminals.

(3) Replace a defective voltmeter.

c. Installation. Refer to figure 12 and install the voltmeter.

d. Field Expedient Repair. In the event of a defective voltmeter with no replacement meter available, refer to *a* above and remove the voltmeter. Tape the exposed electrical leads separately. Operate the unit without the voltmeter.

42. Control Cabinet Receptacle Connectors

a. Removal. Refer to figure 13 and remove the control cabinet receptable connectors.

b. Cleaning and Inspection.

(1) Wipe the connectors free of dirt and grease using a clean, dry cloth.

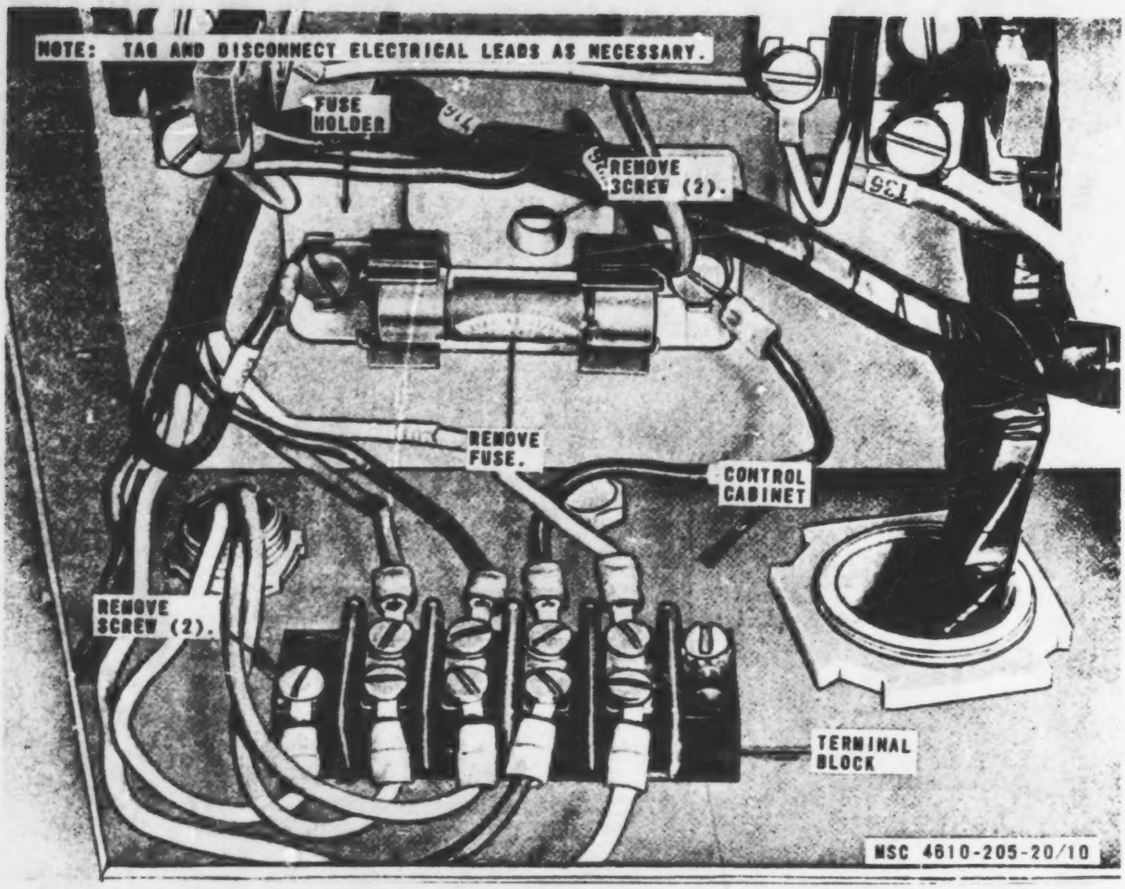

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.
FUSE HOLDER
REMOVE SCREW (2).
REMOVE FUSE.
CONTROL CABINET
REMOVE SCREW (2).
TERMINAL BLOCK
MSC 4810-205-20/10

Figure 10. Fuse holder and terminal block, removal and installation.

(2) Inspect the connectors for cracks, breaks, and broken or loose terminals.

(3) Replace a defective receptable connector.

c. Installation. Refer to figure 13 and install the control cabinet receptable connectors.

43. Terminal Block

a. Removal. Refer to figure 10 and remove the terminal block.

b. Cleaning and Inspection.

(1) Wipe the terminal block clean with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the terminal block for cracks, breaks, and loose or broken terminals.

(3) Replace a defective terminal block.

c. Installation. Refer to figure 10 and install the terminal block.

44. Terminal Board

a. Removal. Refer to figure 14 and remove the terminal board.

b. Cleaning and Inspection.

(1) Wipe the terminal board clean with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the board for cracks, breaks, and loose or broken terminals.

(3) Replace a defective terminal board.

c. Installation. Refer to figure 14 and install the terminal board.

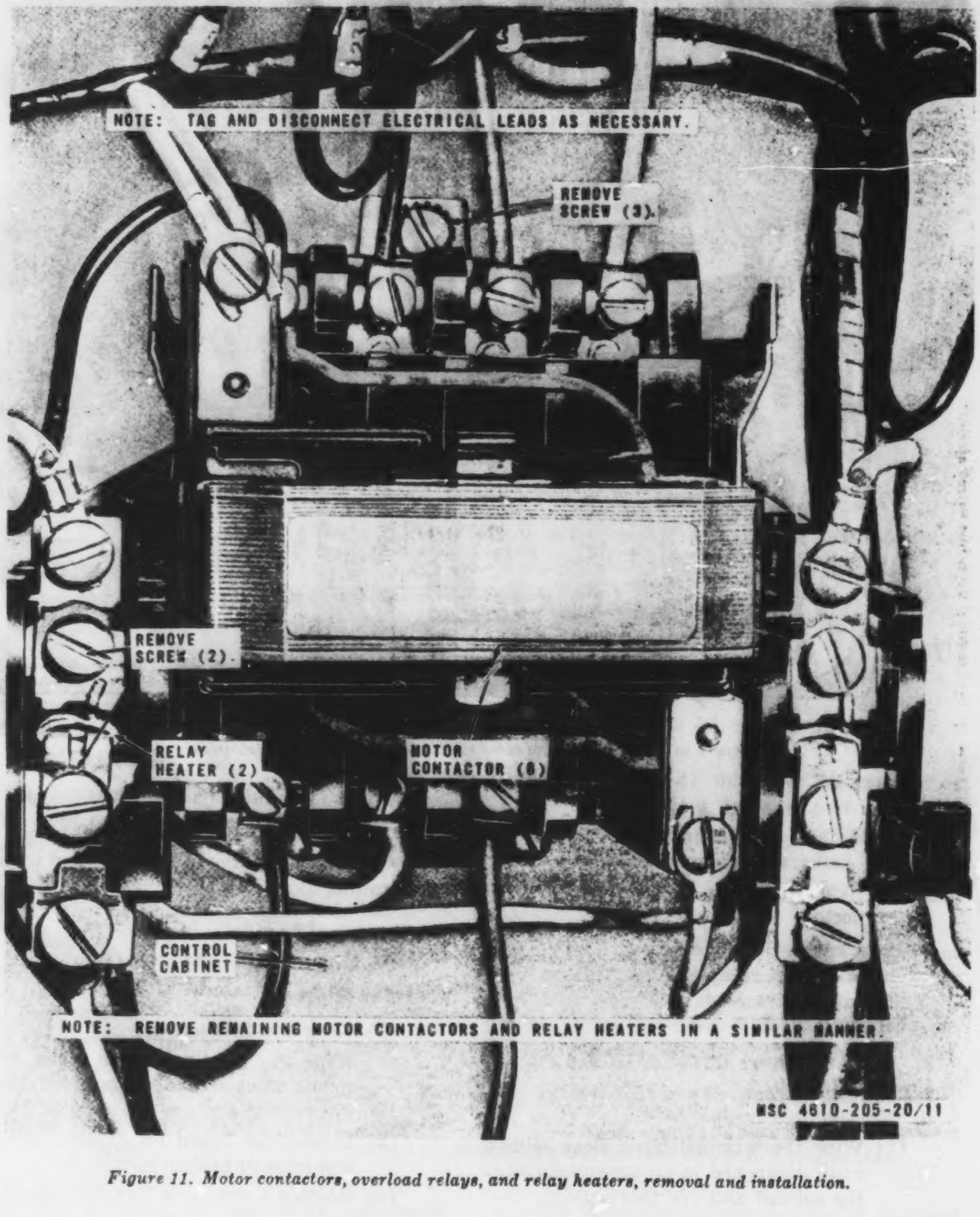
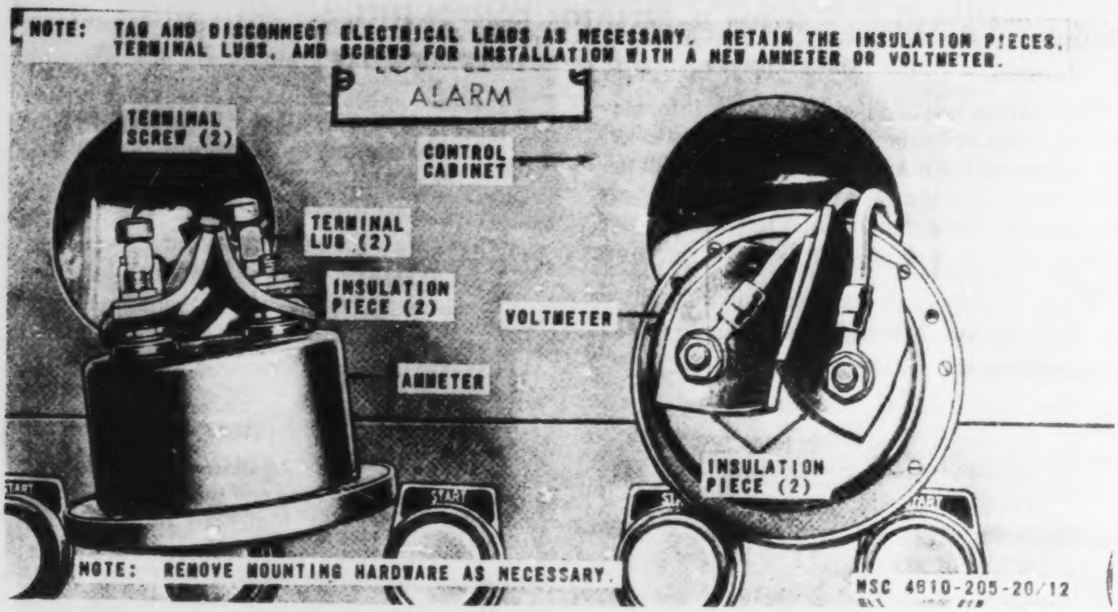

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.
REMOVE SCREW (3).
REMOVE SCREW (2).
RELAY HEATER (2)
MOTOR CONTACTOR (6)
CONTROL CABINET
NOTE: REMOVE REMAINING MOTOR CONTACTORS AND RELAY HEATERS IN A SIMILAR MANNER.
MSC 4610-205-20/11

Figure 11. Motor contactors, overload relays, and relay heaters, removal and installation.

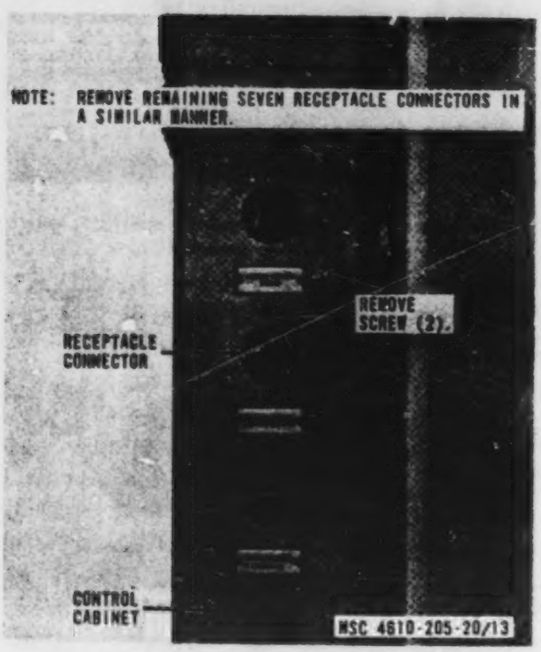


NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY. RETAIN THE INSULATION PIECES, TERMINAL LUGS, AND SCREWS FOR INSTALLATION WITH A NEW AMMETER OR VOLTMETER.

NOTE: REMOVE MOUNTING HARDWARE AS NECESSARY.

ALARM
TERMINAL SCREW (2)
CONTROL CABINET
TERMINAL LUG (2)
INSULATION PIECE (2)
VOLTMETER
AMMETER
INSULATION PIECE (2)
START
START
START
MSC 4610-205-20/12

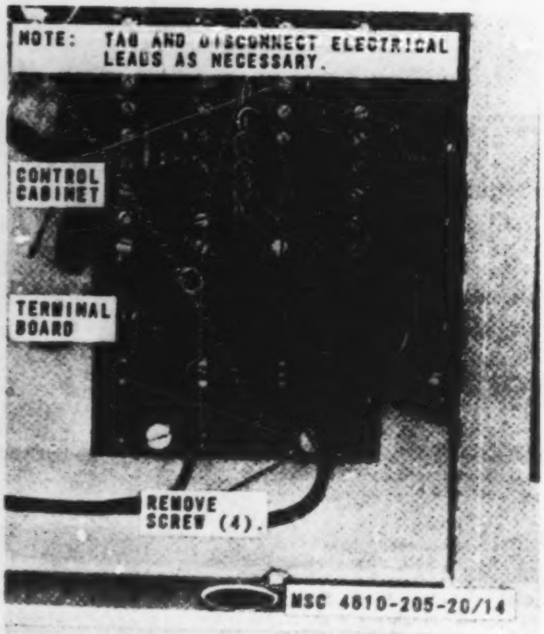
Figure 12. Ammeter and voltmeter, removal and installation.



NOTE: REMOVE REMAINING SEVEN RECEPTACLE CONNECTORS IN A SIMILAR MANNER.

REMOVE SCREW (2).
RECEPTACLE CONNECTOR
CONTROL CABINET
MSC 4610-205-20/13

Figure 13. Control cabinet receptacle connectors, removal and installation.



NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.

CONTROL CABINET
TERMINAL BOARD
REMOVE SCREW (4).
MSC 4610-205-20/14

Figure 14. Terminal board, removal and installation.

Section II. ERDLATOR COMPONENTS

45. General

This section contains maintenance information on those components that are mounted on and operated with the erdlator tank. These items consists of the raw water piping, aspirator, agitator drive components, low water level sensing switch, and effluent launder leveling rods.

46. Agitator Drive Motor, Belt, and Base Assembly

a. Removal.

(1) Refer to figure 15 and remove the agitator drive motor, belt, and base assembly.

(2) Refer to figure 16 and remove the drive motor power cable.

b. Disassembly. Refer to figure 17 and disassemble the drive motor base assembly.

c. Cleaning, Inspection, and Repair.

(1) Clean and drive motor with a cloth dampened in an approved cleaning solvent. Wash the base assembly in an approved cleaning solvent. Dry all parts thoroughly.

(2) Inspect the drive motor for cracks, breaks, damaged insulation, and evidence of overheating.

(3) Inspect the drive belt for cracks, breaks, and deterioration.

(4) Inspect the base assembly for cracks, breaks, damaged threaded components, and other defects.

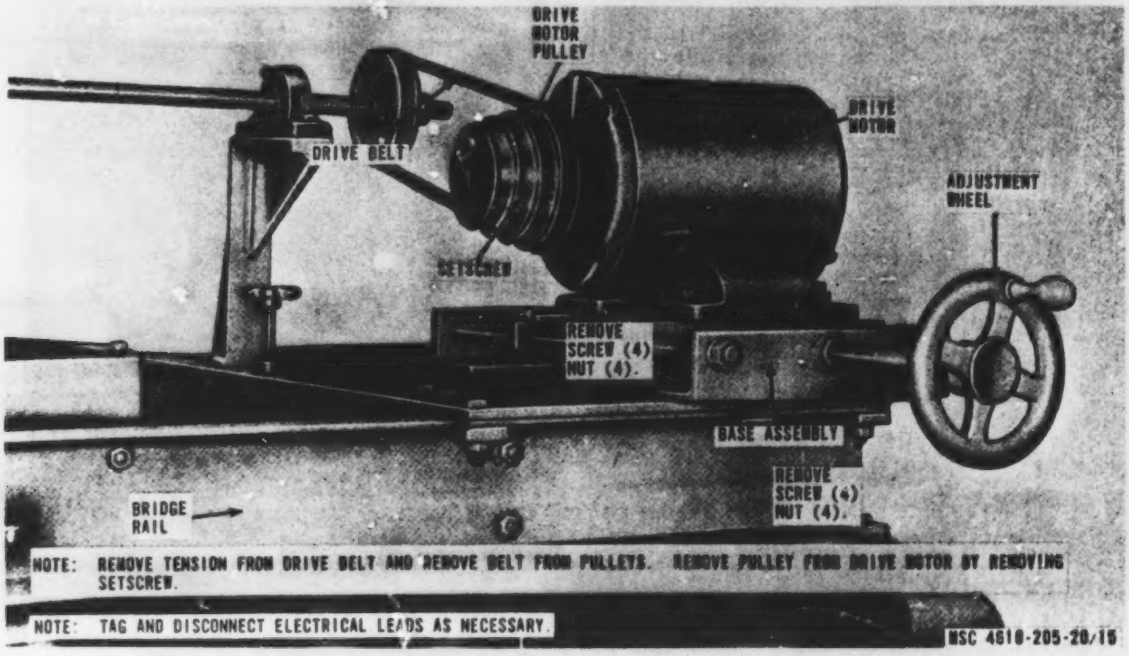
(5) Replace all damaged or defective parts.

d. Testing. Disconnect the power cable from the drive motor leads as in *a* above. Using a multimeter, test between the three motor leads: Continuity should be indicated on each test. Test between each motor lead and the frame: Continuity should not be indicated.

e. Reassembly. Refer to figure 17 and reassemble the base assembly.

f. Installation.

(1) Refer to figure 16 and install the agitator drive motor power cable.



NOTE: REMOVE TENSION FROM DRIVE BELT AND REMOVE BELT FROM PULLEYS. REMOVE PULLEY FROM DRIVE MOTOR BY REMOVING SETSCREW.

NOTE: TAG AND DISCONNECT ELECTRICAL LEADS AS NECESSARY.

Figure 15. Agitator drive motor, belt, and base assembly, removal and installation.

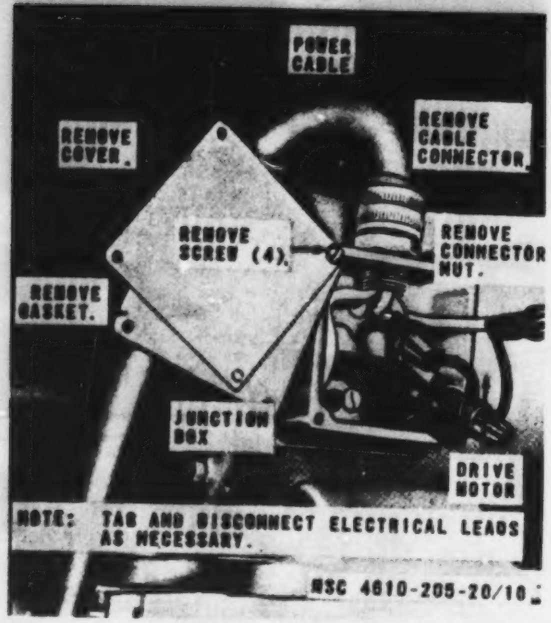


Figure 16. Agitator drive motor power cable, removal and installation.

(2) Refer to figure 15 and install the drive motor, belt, and base assembly.

g. Adjustment. Adjust the drive motor belt tension TM 5-4610-205-10.

47. Agitator Drive Shaft, Bearings, and Flexible Coupling

a. Removal.

(1) Remove the agitator drive motor belt (par. 46).

(2) Refer to figure 18 and remove the agitator drive shaft, bearings, and flexible coupling.

b. Disassebly. Refer to figure 19 and disassemble the agitator drive shaft, bearings, and flexible coupling.

c. Cleaning, Inspection, and Repair.

(1) Wash all parts in an approved cleaning solvent and dry thoroughly. Blow out bearing with compressed air, if available.

(2) Inspect all parts for cracks, breaks, wear, and defective threads.

(3) Inspect the bearings for pitting and rough travel.

(4) Replace all worn or defective parts.

d. Reassembly. Refer to figure 19 and reassemble the agitator drive shaft, bearings, and flexible coupling.

e. Installation.

(1) Refer to figure 18 and install the agitator drive shaft, bearings, and flexible coupling.

(2) Install the agitator drive motor belt (par. 46).

48. Agitator Speed Reducer and Flexible Coupling

a. Removal. Refer to figure 20 and remove the agitator speed reducer and flexible coupling.

b. Cleaning and Inspection.

(1) Clean the speed reducer in an approved cleaning solvent and dry thoroughly.

(2) Inspect the speed reducer and flexible coupling for cracks, breaks, wear, and other damage.

(3) Inspect the speed reducer for evidence of oil leakage.

(4) Replace a defective speed reducer.

c. Installation. Refer to figure 20 and install the agitator speed reducer and flexible coupling.

49. Raw Water Flow Indicator

a. Removal. Refer to figure 21 and remove the raw water flow indicator.

b. Cleaning and Inspection.

(1) Wipe the indicator free of dirt and grease with a dry, clean cloth.

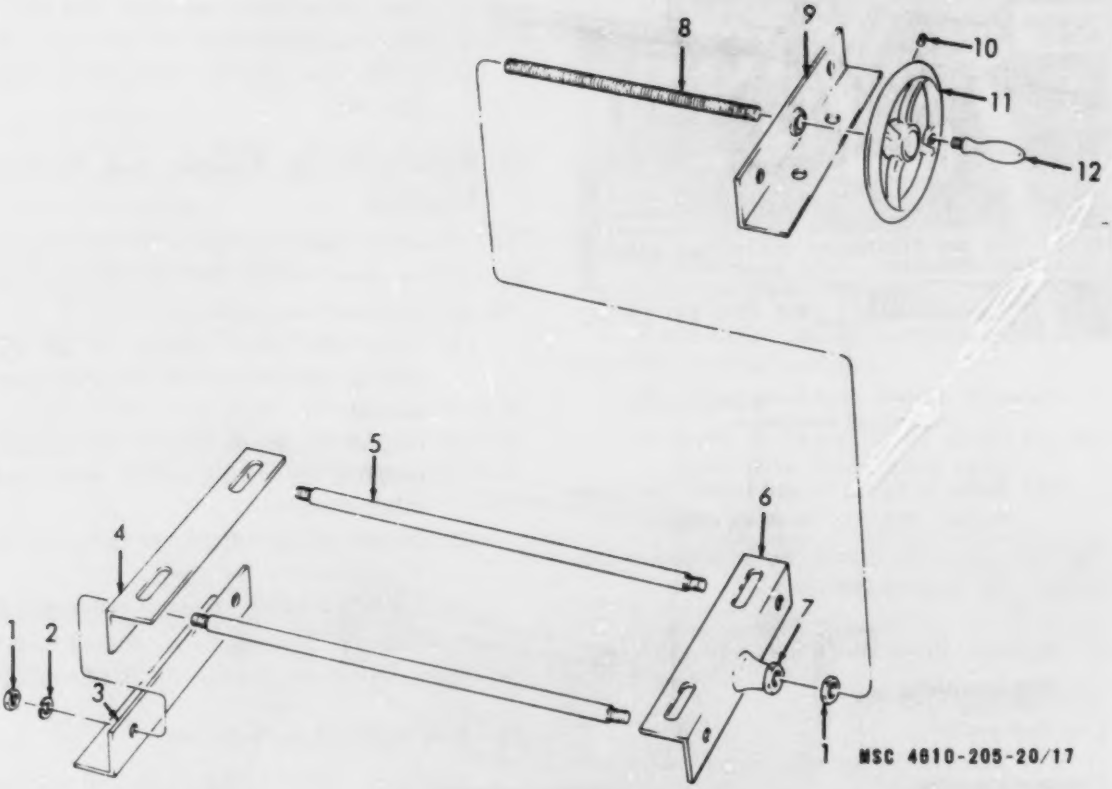
(2) Inspect the indicator for cracks, breaks, loose pointer, or other defects.

(3) Replace a defective flow indicator.

c. Installation. Refer to figure 21 and install the raw water flow indicator.

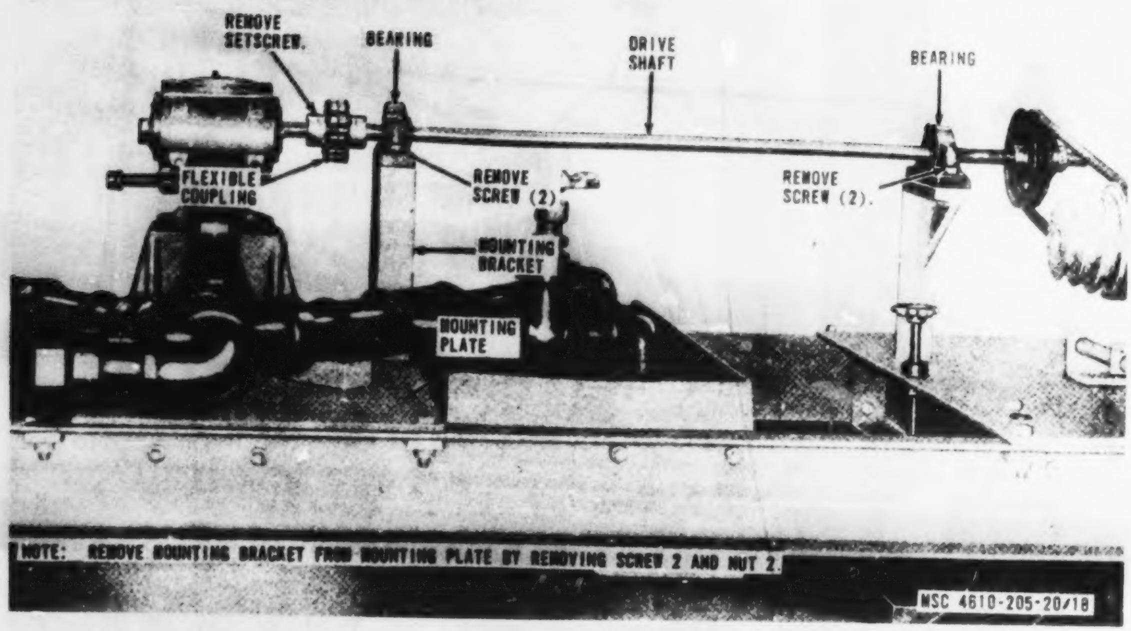
50. Raw Water Pressure Gage

a. Removal. Refer to figure 22 and remove the raw water pressure gage.


8
9
10
11
12
5
4
6
7
1
2
3
1
MSC 4610-205-20/17

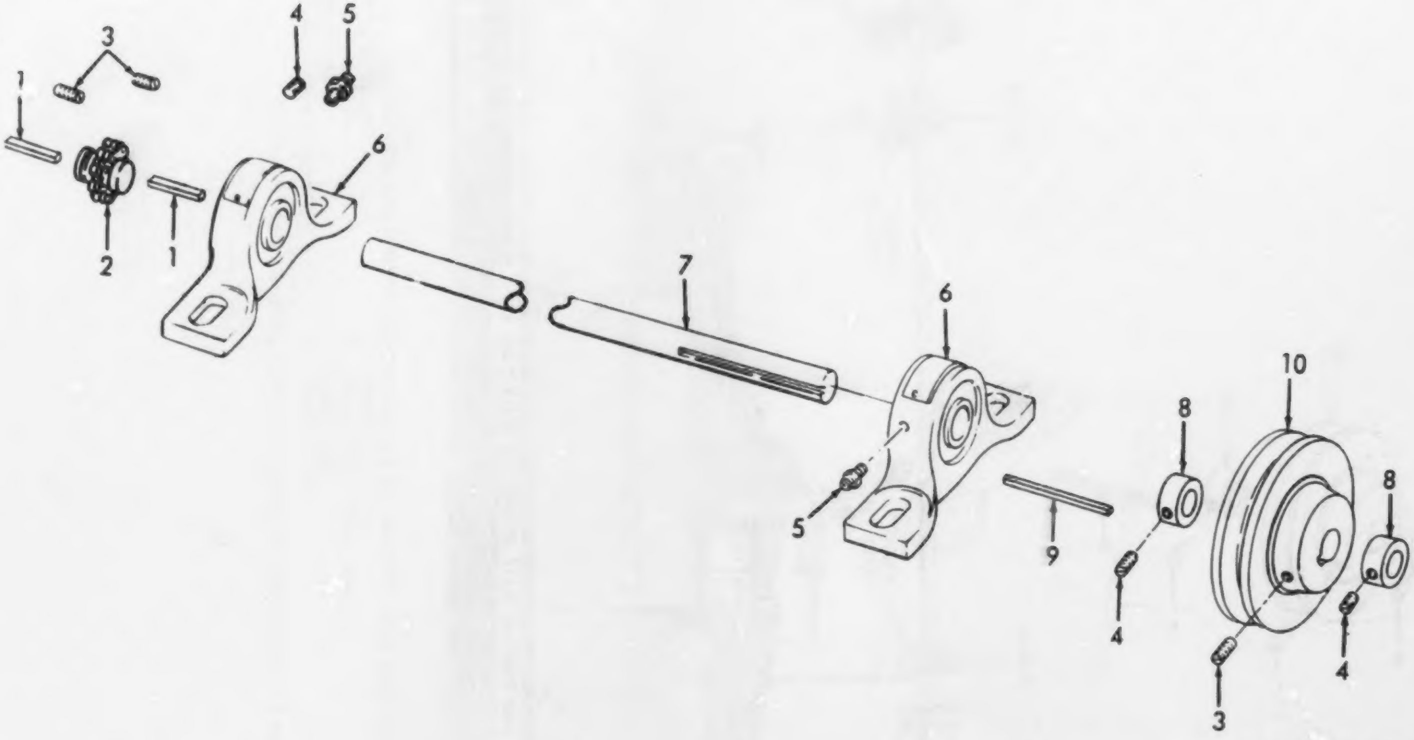
1	Nut, hex, ½–13 (5 rqr)	5	**Guide rod (2 rqr)**	9	**Right angle support**
2	Washer, lock, ½ in. (4 rqr)	6	**Right angle sliding support**	10	**Setscrew**
3	Left angle support	7	**Toggle pad**	11	**Adjustment wheel**
4	Left angle sliding support	8	**Toggle screw**	12	**Wheel handle**

Figure 17. Agitator drive motor base assembly, disassembly and reassembly.


REMOVE SETSCREW.
BEARING
DRIVE SHAFT
BEARING
FLEXIBLE COUPLING
REMOVE SCREW (2).
REMOVE SCREW (2).
MOUNTING BRACKET
MOUNTING PLATE
MSC 4610-205-20/18

NOTE: REMOVE MOUNTING BRACKET FROM MOUNTING PLATE BY REMOVING SCREW 2 AND NUT 2.

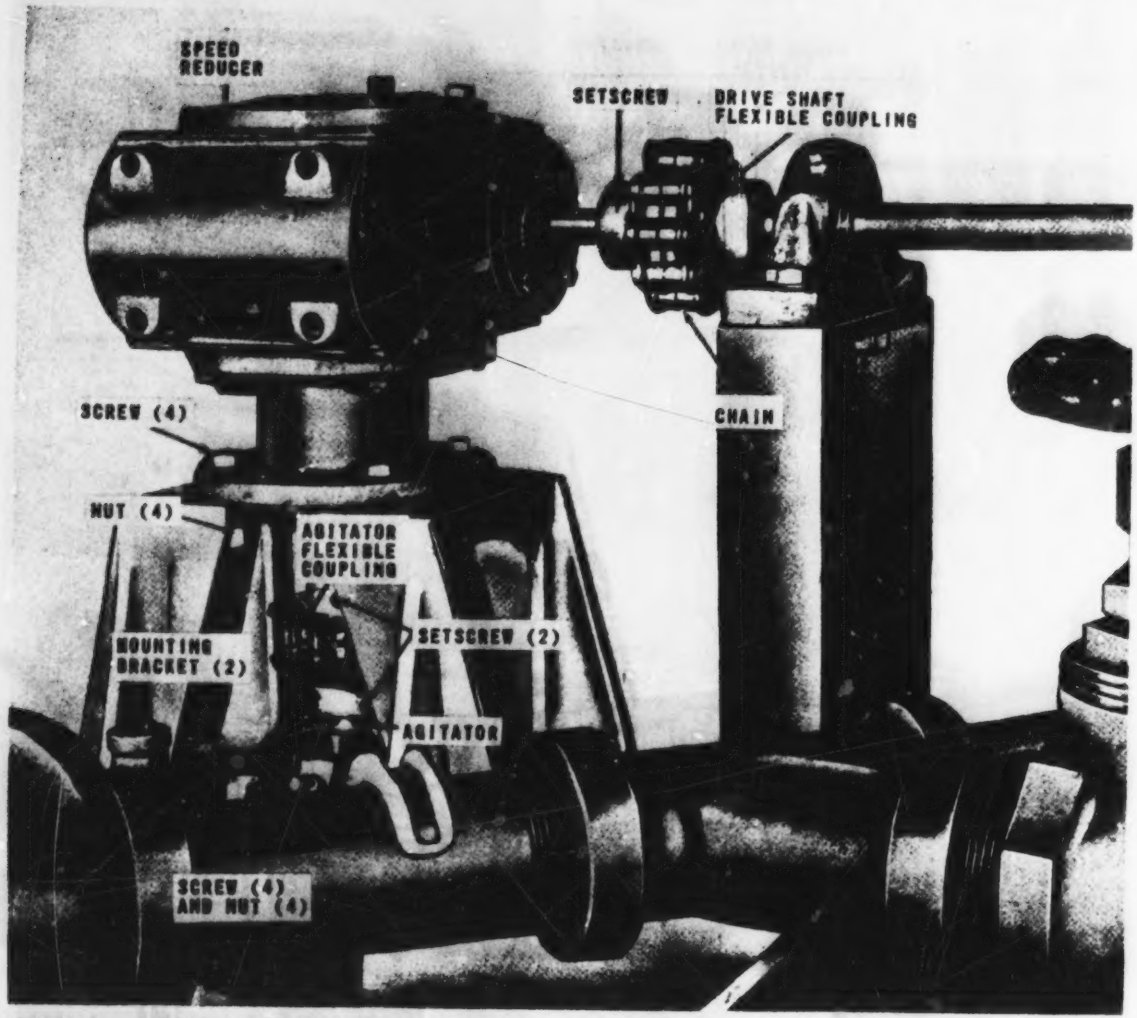
Figure 18. Agitator drive shaft, bearing, and flexible coupling, removal and installation.



MSC 4610-205-20/19

1 Key, machine, 3/16 x 3/16 x 1 in. (2 rqr)
2 Flexible coupling
3 Setscrew, ¼–20 x ¼ in. (3 rqr)
4 Setscrew, No. 10–24 x ¼ in. (4 rqr)
5 Fitting (2 rqr)
6 Bearing (2 rqr)
7 Drive shaft
8 Collar (2 rqr)
9 Key, machine, 3/16 x 3/16 x 4 in.
10 Pulley

Figure 19. Agitator drive shaft, bearings, and flexible coupling, disassembly and reassembly.


SPEED REDUCER
SETSCREW
DRIVE SHAFT FLEXIBLE COUPLING
CHAIN
SCREW (4)
NUT (4)
AGITATOR FLEXIBLE COUPLING
SETSCREW (2)
MOUNTING BRACKET (2)
AGITATOR
SCREW (4) AND NUT (4)

STEP 1. REMOVE SETSCREW FROM SPEED REDUCER SIDE OF DRIVE SHAFT FLEXIBLE COUPLING. REMOVE CHAIN BY REMOVING MASTER LINK.

STEP 2. LOOSEN TWO SETSCREWS THAT SECURE AGITATOR FLEXIBLE COUPLING TO SPEED REDUCER AND TO AGITATOR.

STEP 3. REMOVE FOUR SCREWS AND NUTS THAT SECURE SPEED REDUCER TO MOUNTING BRACKETS.

STEP 4. REMOVE SPEED REDUCER BY LIFTING STRAIGHT UP AND AT THE SAME TIME, PRY AGITATOR FLEXIBLE COUPLING FROM AGITATOR.

STEP 5. REMOVE MOUNTING BRACKETS BY REMOVING FOUR SCREWS AND NUTS.

MSC 4810-205-20/20

Figure 20. Agitator speed reducer and flexible coupling, removal and installation.

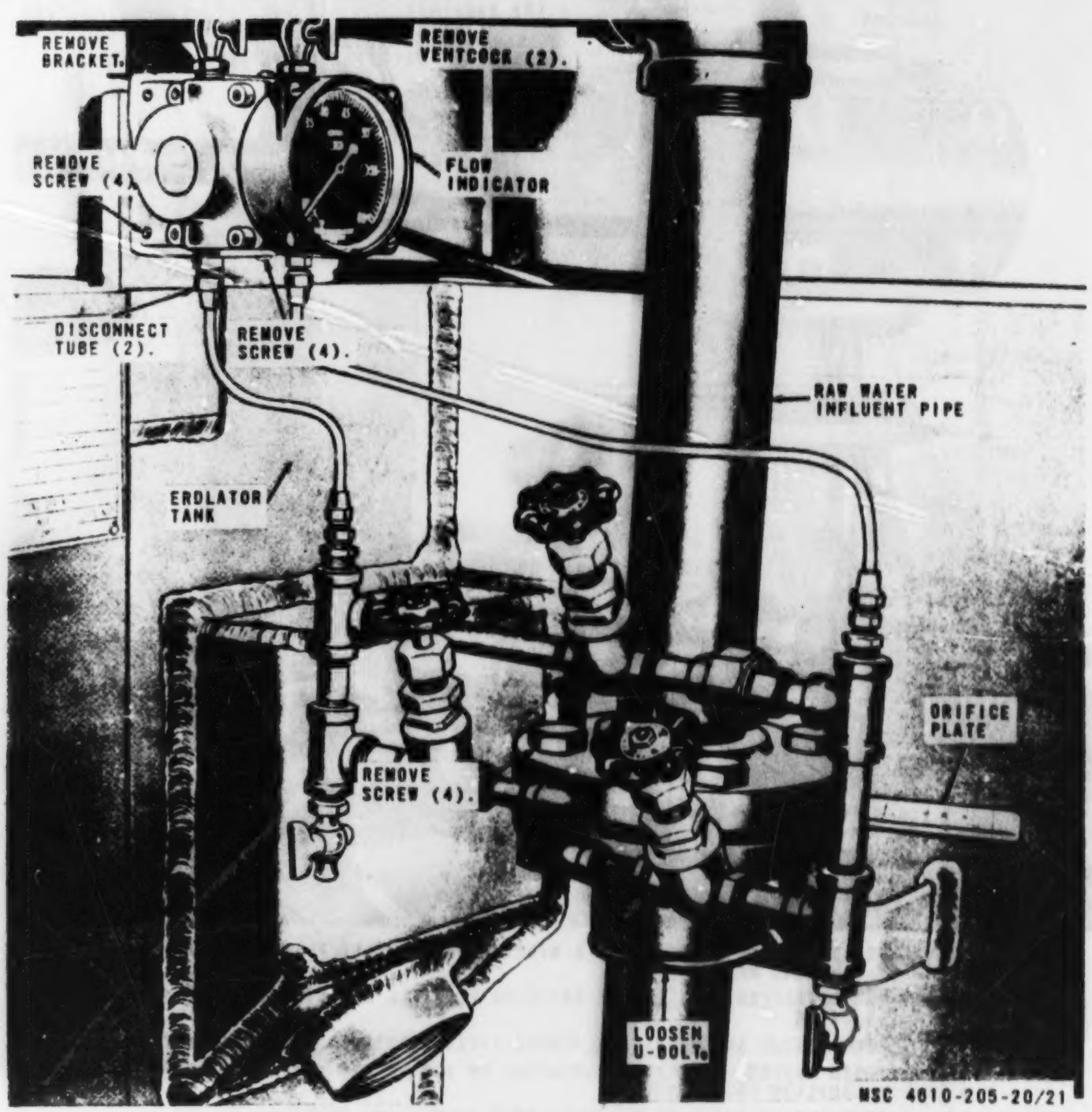

REMOVE BRACKET.
REMOVE VENTCOCK (2).
REMOVE SCREW (4).
FLOW INDICATOR
DISCONNECT TUBE (2).
REMOVE SCREW (4).
RAW WATER INFLUENT PIPE
ERDLATOR TANK
ORIFICE PLATE
REMOVE SCREW (4).
LOOSEN U-BOLT.
MSC 4610-205-20/21

Figure 21. Raw water flow indicator and orifice plate, removal and installation.

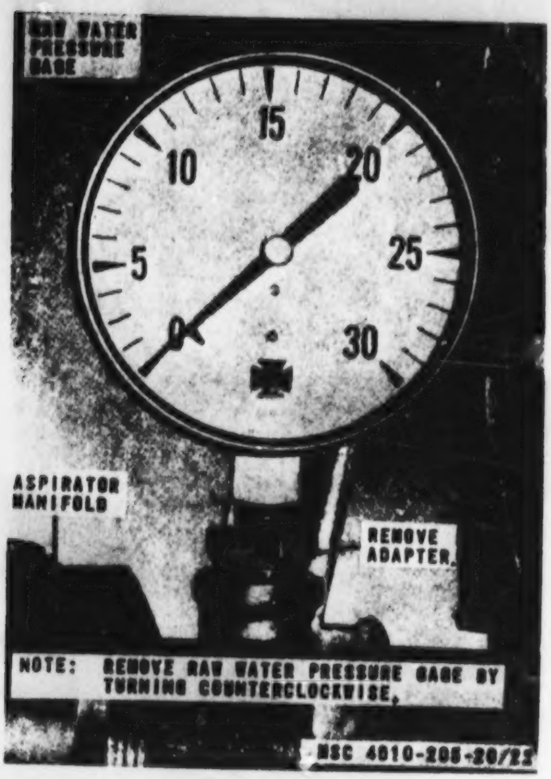

RAW WATER PRESSURE GAGE
15
10
20
5
25
0
30
ASPIRATOR MANIFOLD
REMOVE ADAPTER
NOTE: REMOVE RAW WATER PRESSURE GAGE BY TURNING COUNTERCLOCKWISE.
MSC 4610-205-20/22

Figure 22. Raw water pressure gage, removal and installation.

b. Cleaning and Inspection.

(1) Wipe the gage clean with a dry, clean cloth.

(2) Inspect the gage for cracks, breaks, loose pointer, or other damage.

(3) Replace a defective pressure gage.

c. Installation. Refer to figure 22 and install the raw water pressure gage.

51. Raw Water Orifice Plate

a. Removal. Refer to figure 21 and remove the raw water orifice plate.

b. Cleaning and Inspection.

(1) Clean all gasket material from the plate being careful not to damage the inside diameter of the orifice.

(2) Inspect the orifice plate for rust or other damage.

(3) Replace the orifice plate gaskets. Replace a damaged orifice plate.

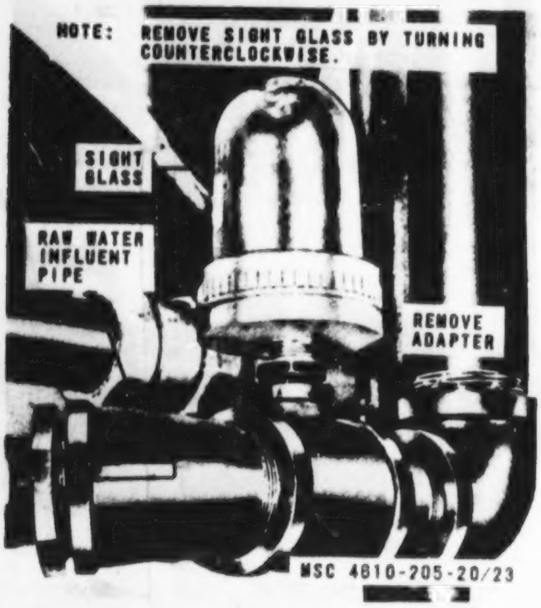

NOTE: REMOVE SIGHT GLASS BY TURNING COUNTERCLOCKWISE.
SIGHT GLASS
RAW WATER INFLUENT PIPE
REMOVE ADAPTER
MSC 4610-205-20/23

Figure 23. Raw water sight glass, removal and installation.

c. Installation. Refer to figure 21 and install the orifice plate.

52. Raw Water Sight Glass

a. Removal. Refer to figure 23 and remove the raw water sight glass.

b. Disassembly. Refer to figure 24 and disassemble the raw water sight glass.

c. Cleaning and Inspection.

(1) Wash all parts in soap and water.

(2) Inspect for cracks, breaks, damaged threads, or other damage that may cause leakage.

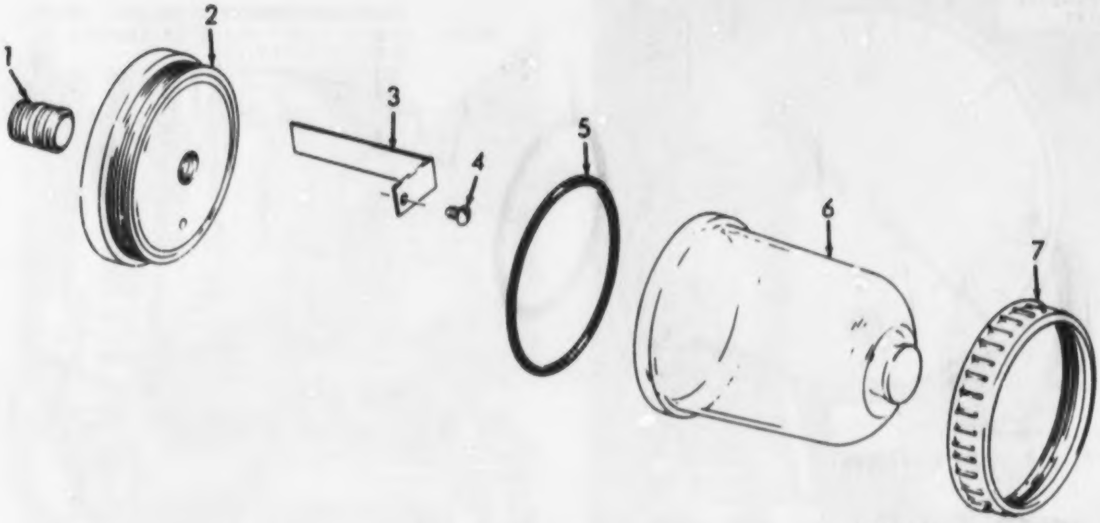
(3) Replace all defective parts.

d. Reassembly. Refer to figure 24 and reassemble the raw water sight glass.

e. Installation. Refer to figure 23 and install the water sight glass.

53. Raw Water Aspirators, Piping, and Valves

a. Removal. Refer to figure 25 and remove the raw water aspirators, piping, and valves.



MSC 4610-205-20/24

1 Nipple, pipe, ½–14 x 1¼ in.
2 Base
3 Flutter bracket
4 Screw, machine, No. 6–32 x ¼ in.
5 Gasket
6 Glass
7 Compression ring

Figure 24. Raw water sight glass, disassembly and reassembly.

b. Disassembly. Refer to figure 26 and disassemble the raw water aspirators, piping, and valves.

c. Cleaning, Inspection, and Repair.

(1) Wash all parts in soap and water. Blow out valves with compressed air, if available.

(2) Inspect all parts for cracks, breaks, and damaged threads.

(3) Inspect the valves for freedom of operation.

(4) Replace all defective parts.

d. Reassembly. Refer to figure 26 and reassemble the raw water aspirators, piping, and valves.

e. Installation. Refer to figure 25 and install the raw water aspirators, piping, and valves.

54. Raw Water Bypass Float Valve, Float, and Linkage

a. Removal.

(1) Refer to figure 27 and remove the float and linkage.

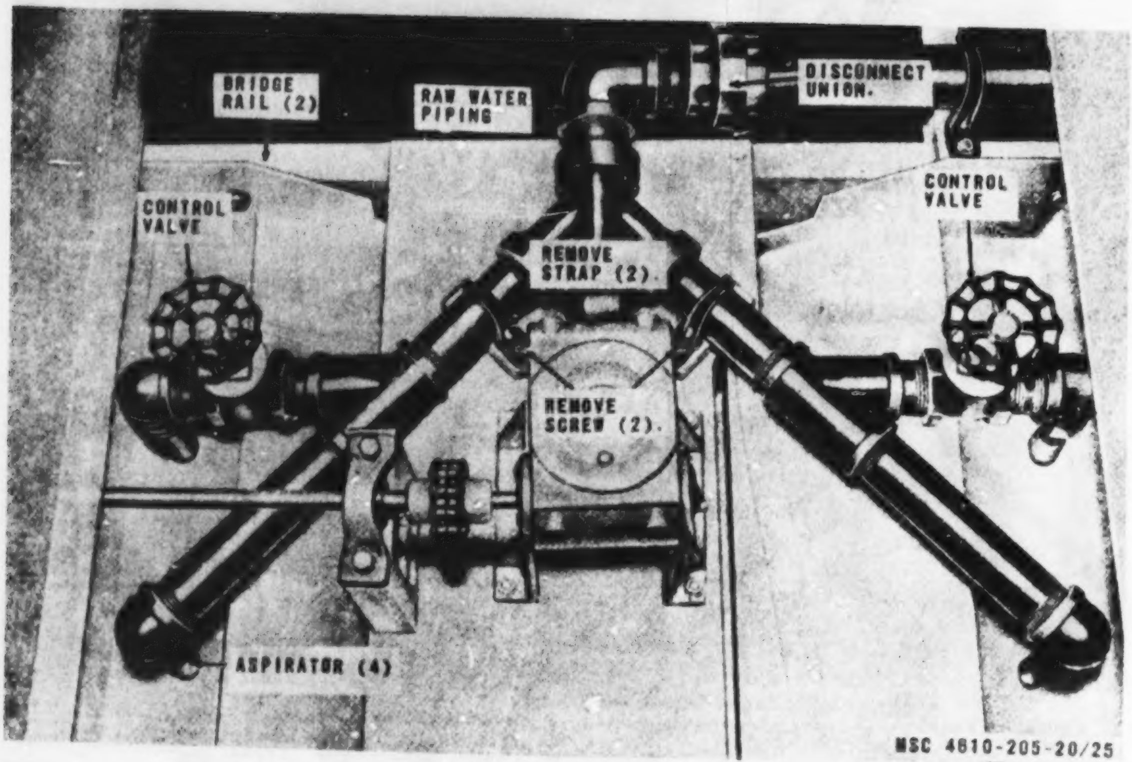
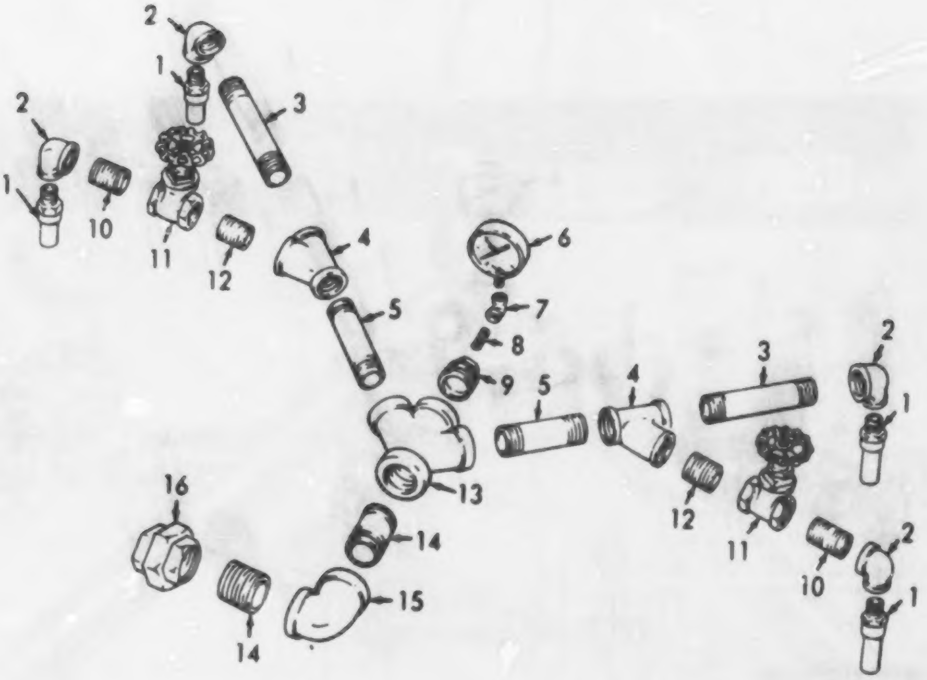

BRIDGE RAIL (2)
RAW WATER PIPING
DISCONNECT UNION.
CONTROL VALVE
CONTROL VALVE
REMOVE STRAP (2).
REMOVE SCREW (2).
ASPIRATOR (4)
MSC 4610-205-20/25

Figure 25. Raw water aspirators, piping, and valves, removal and installation.



EMC 4610-203-12/125

1 Aspirator (4 rqr)
2 Elbow, pipe, 90°, 1½ x 1¼ in. (4 rqr)
3 Nipple, pipe, 1½ x 9½ in. (2 rqr)
4 Lateral, pipe, 45°, 1½ in. (2 rqr)
5 Nipple, pipe, ½ x 6 in. (2 rqr)
6 Pressure gage
7 Elbow, pipe, 90°, ¼ in.
8 Nipple, pipe, ¼ x 2 in.
9 Bushing, pipe, 2 in. male x ¼ in. female
10 Nipple, pipe, 1½ x 2½ in. (2 rqr)
11 Control valve (2 rqr)
12 Nipple, pipe, 1½ x 1¾ in. (2 rqr)
13 Lateral, pipe, double, 2 x 1½ in.
14 Nipple, pipe, 2 x 2 in. (2 rqr)
15 Elbow, pipe, 90°, female, 2 x 2 in.
16 Union pipe, female, 2 in.

Figure 26. Raw water aspirators, piping, and valves, disassembly and reassembly.

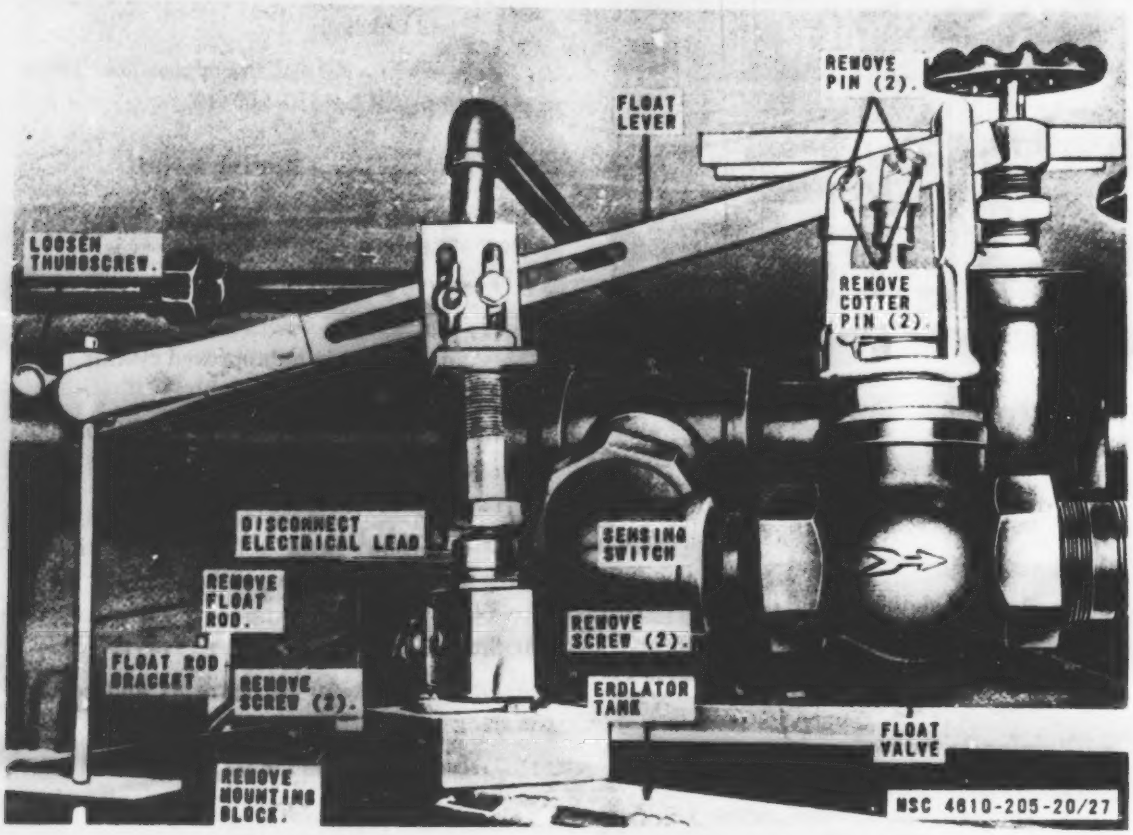
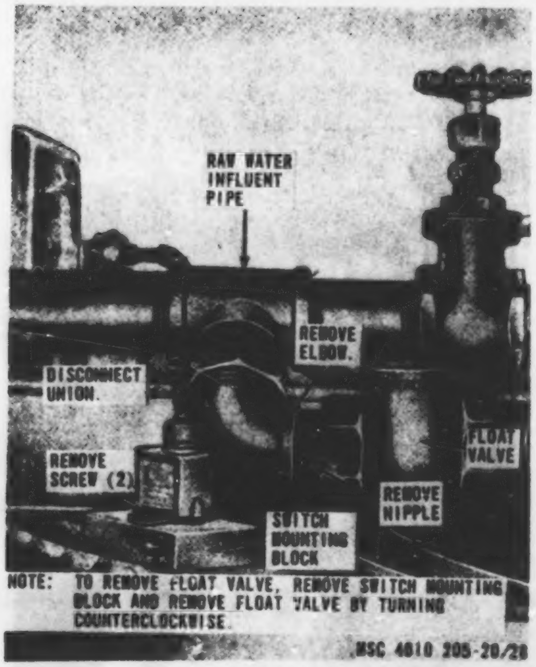

LOOSEN THUMBSCREW.
FLOAT LEVER
REMOVE PIN (2).
REMOVE COTTER PIN (2).
DISCONNECT ELECTRICAL LEAD
SENSING SWITCH
REMOVE FLOAT ROD.
FLOAT ROD BRACKET
REMOVE SCREW (2).
REMOVE SCREW (2).
ERDLATOR TANK
FLOAT VALVE
REMOVE MOUNTING BLOCK.
MSC 4610-205-20/27

Figure 27. Float, linkage, and sensitive switch, removal and installation.



NOTE: TO REMOVE FLOAT VALVE, REMOVE SWITCH MOUNTING BLOCK AND REMOVE FLOAT VALVE BY TURNING COUNTERCLOCKWISE.

Figure 28. Bypass float valve, removal and installation.

(2) Refer to figure 28 and remove the float valve.

b. Disassembly.

(1) Refer to figure 29 and disassemble the float and linkage.

(2) Refer to figure 30 and disassemble the float valve.

c. Cleaning, Inspection, and Repair.

(1) Wash all parts in soap and water or an approved nonmineral solvent. Blow out the valves with compressed air, if available.

(2) Inspect all parts for cracks, breaks, and wear.

(3) Inspect the float for defects that may render it unserviceable.

(4) Inspect the float valve linkage for misalinement.

(5) Inspect the valves for improper operation.

(6) Replace all defective parts.

d. Reassembly.

(1) Refer to figure 30 and reassemble the float valve.

(2) Refer to figure 29 and reassemble the float and linkage.

e. Installation.

(1) Refer to figure 28 and install the float valve.

(2) Refer to figure 27 and install the float and linkage.

f. Adjustment. Adjust the bypass float valve as directed in TM 5–4610–205–10.

55. Low Water Level Sensing Switch

a. Removal. Refer to figure 27 and remove the low water level sensing switch.

b. Cleaning and Inspection.

(1) Clean the switch with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the switch for cracks, breaks, and damaged wiring.

(3) Replace a defective switch.

c. Installation. Refer to figure 27 and install the low water level sensing switch.

56. Sludge Concentrator Tank Valves

a. Removal. Refer to figure 31 and remove the sludge concentrator tank valves.

b. Disassembly. Refer to figure 32 and disassemble the sludge concentrator tank valves.

c. Cleaning and Inspection.

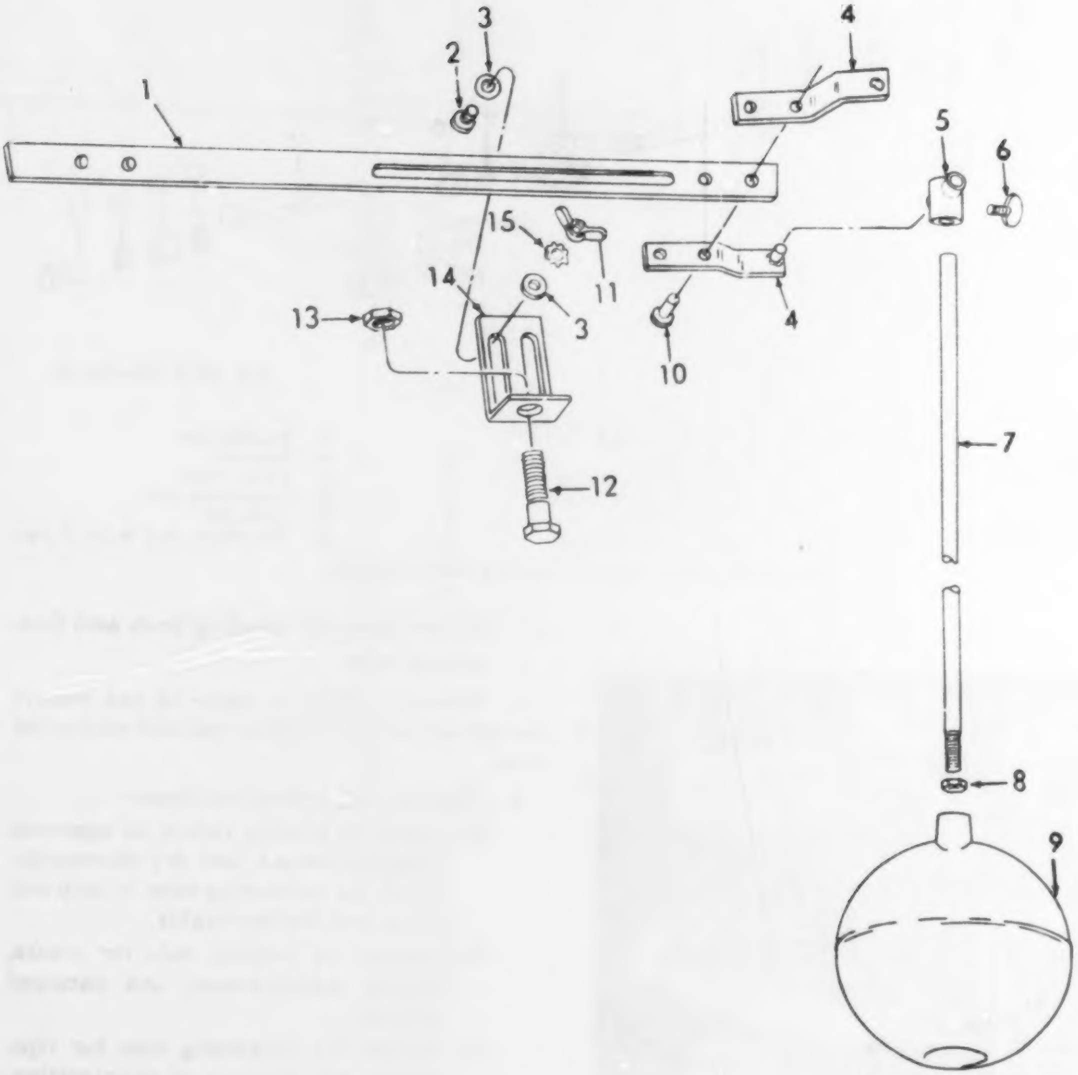
(1) Clean all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, breaks, damaged threads, and misalinement.

(3) Replace all defective parts.

d. Reassembly. Refer to figure 32 and reassemble the sludge concentrator tank valves.

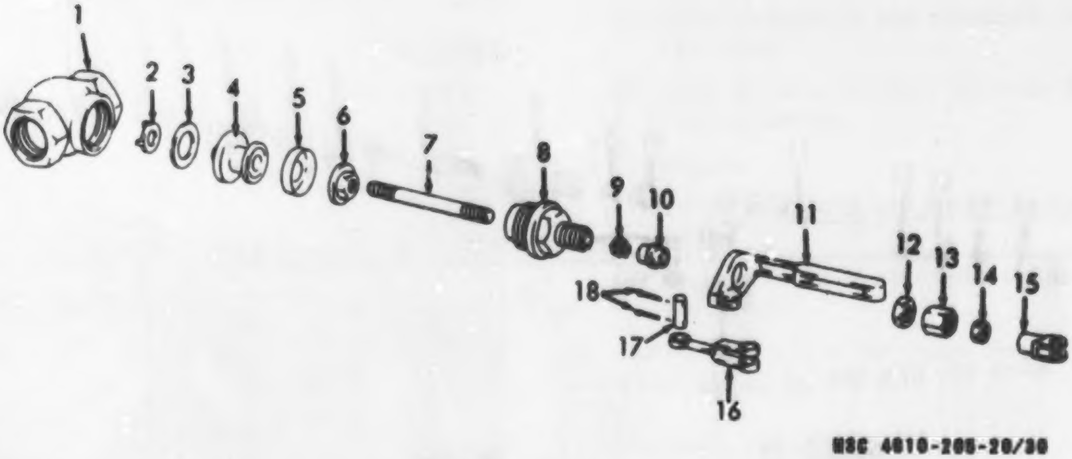
e. Installation. Refer to figure 31 and install the sludge concentrator tank valves.



EMC 4610-203-12/140

1 Float lever
2 Screw, cap, hex-head, ¼-20 x 1¼ in. (2 rqr)
3 Washer, flat, ¼ in. (4 rqr)
4 Fork
5 Float rod connector
6 Screw, thumb, ¼-20 x ½ in.
7 Float rod
8 Nut, hex, ¼-20
9 Rubber float
10 Rivet (2 rqr)
11 Nut, wing, ¼-20 (2 rqr)
12 Screw, cap, hex-head, ⅝-18 x 2½ in.
13 Nut, hex, ⅝-18
14 Bracket
15 Washer, lock, ET, ¼ in. (2 rqr)

Figure 29. Float and linkage, disassembly and reassembly.



1	Body	7	Valve rod	13	Packing nut
2	Disk follower	8	Bonnet	14	Locknut
3	Valve disk	9	Valve packing	15	Valve lifter
4	Piston	10	Packing retainer	16	Connecting link
5	Cup packing	11	Clevis	17	Lever pin
6	Cup follower	12	Valve locknut	18	Pin, cotter, 1/16 x 1/2 in. (2 rqr)

Figure 30. Float valve, disassembly and reassembly.

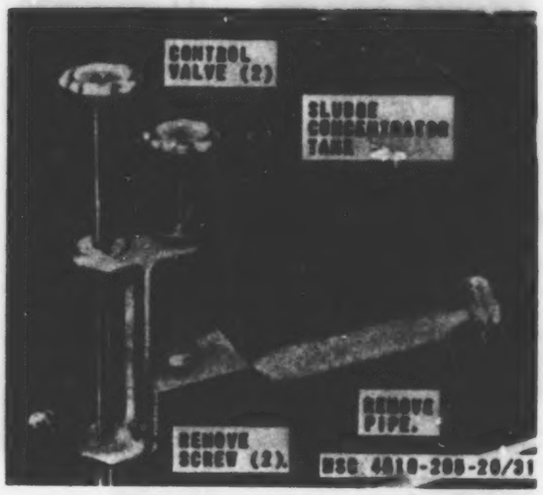


Figure 31. Sludge concentrator tank valves, removal and installation.

57. Effluent Launder Leveling Rods and Connecting Tube

a. Removal. Refer to figure 33 and remove the effluent launder leveling rods and connecting tube.

b. Cleaning, Inspection, and Repair.

(1) Wash the leveling rods in an approved cleaning solvent, and dry thoroughly. Wash the connecting tube in soap and water and dry thoroughly.

(2) Inspect the leveling rods for cracks, breaks, misalinement, and damaged threads.

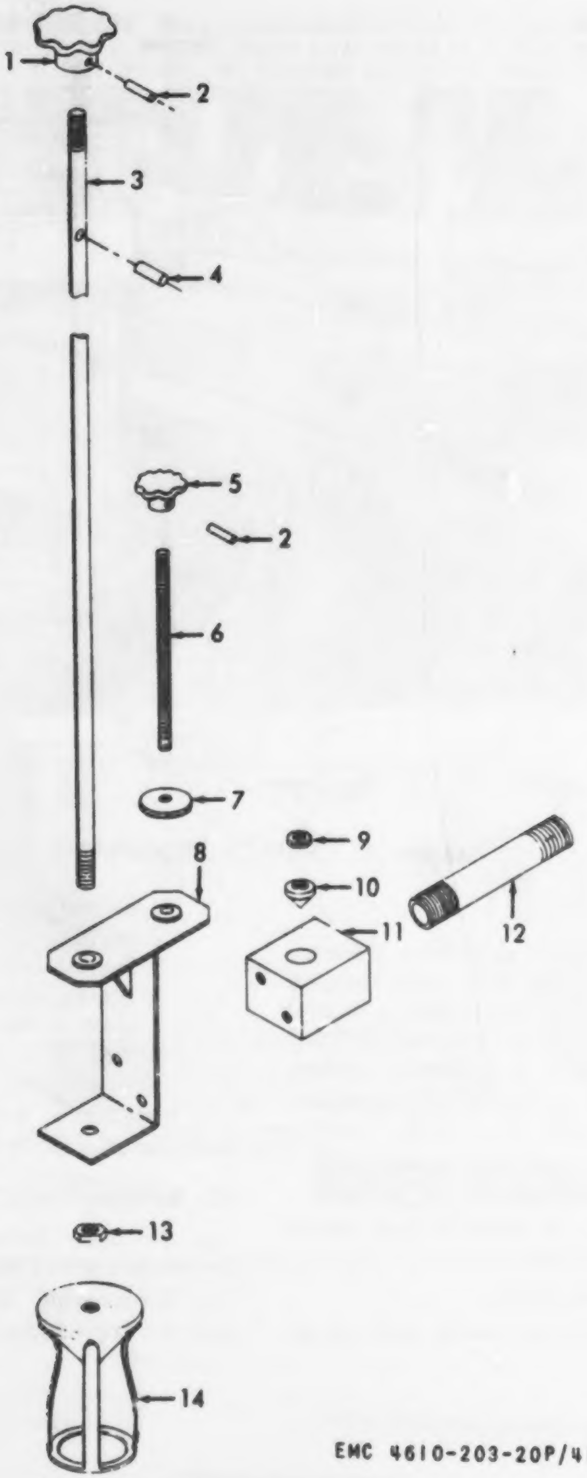
(3) Inspect the connecting tube for rips, breaks, and evidence of deterioration.

(4) Replace all defective parts.

c. Installation. Refer to figure 33 and install the effluent launder leveling rods and connecting tube.

1	Handwheel	6	Rod	11	Block
2	Pin, headless, 1/16 x 5/8 in. (2 rqr)	7	Locknut	12	Nipple, pipe, aluminum, 1 x 8¾ in.
3	Rod	8	Bracket		
4	Pin, headless, ⅛ x ⅝ in. (2 rqr)	9	Nut, hex, ¼–28	13	Nut, hex, ⅜–24
5	Handwheel	10	Orifice plug	14	Orifice plug

Figure 32. Sludge concentrator tank valves, disassembly and reassembly.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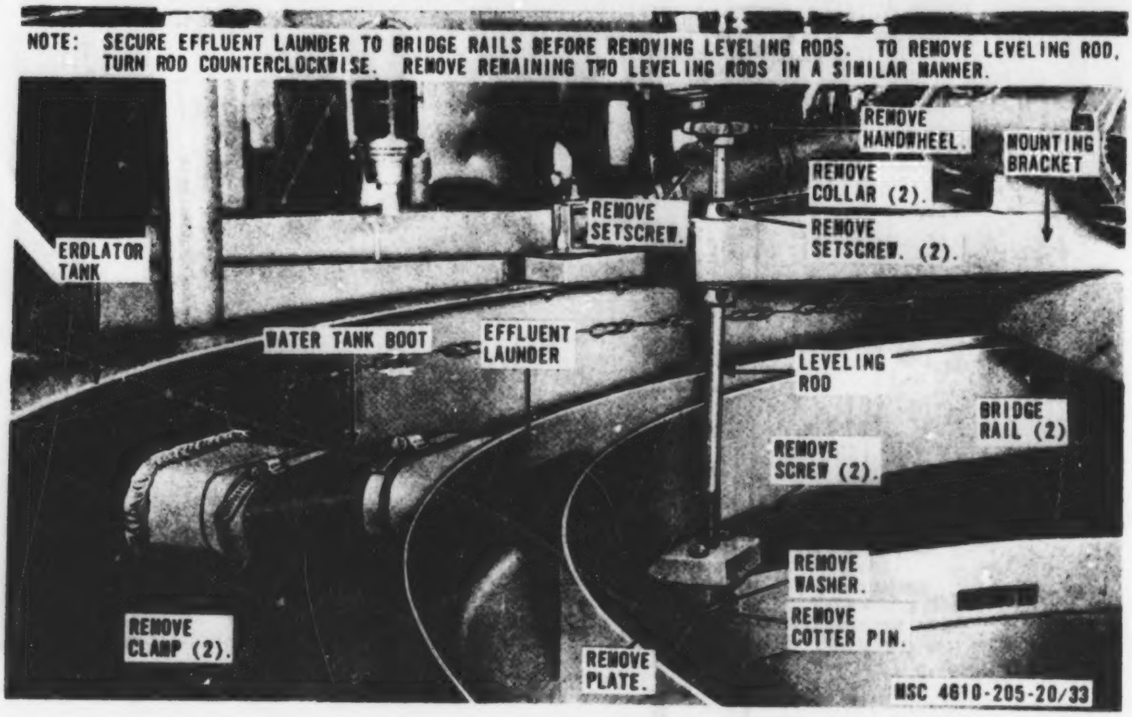
EMC 4610-203-20P/41

Figure 32—Continued.


NOTE: SECURE EFFLUENT LAUNDER TO BRIDGE RAILS BEFORE REMOVING LEVELING RODS. TO REMOVE LEVELING ROD, TURN ROD COUNTERCLOCKWISE. REMOVE REMAINING TWO LEVELING RODS IN A SIMILAR MANNER.

REMOVE HANDWHEEL.
MOUNTING BRACKET
REMOVE COLLAR (2).
REMOVE SETSCREW.
REMOVE SETSCREW. (2).
ERDLATOR TANK
WATER TANK BOOT
EFFLUENT LAUNDER
LEVELING ROD
BRIDGE RAIL (2)
REMOVE SCREW (2).
REMOVE WASHER.
REMOVE COTTER PIN.
REMOVE CLAMP (2).
REMOVE PLATE.
MSC 4610-205-20/33

Figure 33. Effluent launder leveling rods and connecting tube, removal and installation.

Section III. CHEMICAL EQUIPMENT

58. General

This section contains maintenance information for the water purification unit chemical equipment. The chemical equipment is located with the erdlator in the water treatment section. It consists of the slurry and solution feeders, solution and dilution tanks, and the necessary piping and hoses.

59. Chemical Solution Feeder

a. Removal. Refer to figure 34 and remove the chemical solution feeder.

b. Cleaning and Inspection.

(1) Clean the solution feeder with an approved cleaning solvent and dry thoroughly.

(2) Inspect the solution feeder for cracks, breaks, loose mounting hardware, and loose or damaged electrical receptacle.

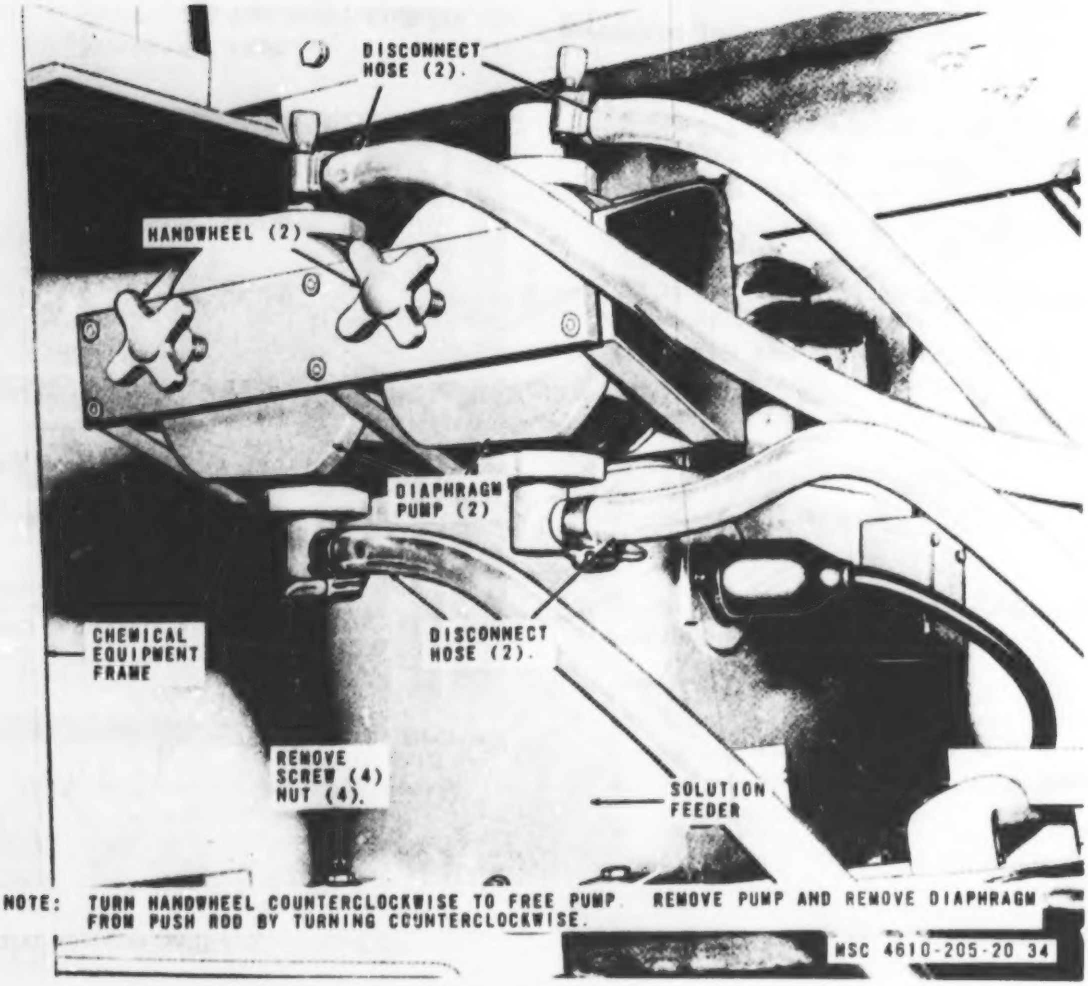
(3) Replace a damaged or defective solution feeder.

c. Installation. Refer to figure 34 and install the chemical solution feeder.

60. Solution Feeder Diaphragm Pumps

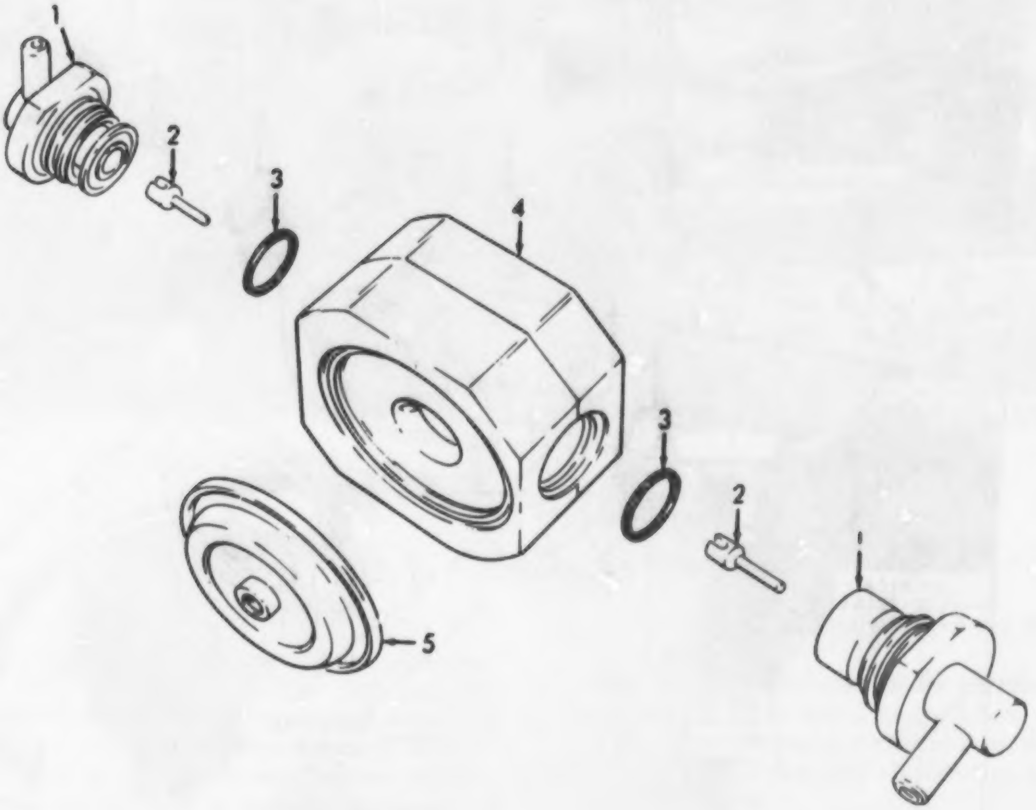
a. Removal. Refer to figure 34 and remove the solution feeder diaphragm pumps.

b. Disassembly. Refer to figure 35 and disassemble the solution feeder diaphragm pumps.


DISCONNECT HOSE (2).
HANDWHEEL (2)
DIAPHRAGM PUMP (2)
CHEMICAL EQUIPMENT FRAME
DISCONNECT HOSE (2).
REMOVE SCREW (4) NUT (4).
SOLUTION FEEDER
MSC 4610-205-20 34

NOTE: TURN HANDWHEEL COUNTERCLOCKWISE TO FREE PUMP. REMOVE PUMP AND REMOVE DIAPHRAGM FROM PUSH ROD BY TURNING COUNTERCLOCKWISE.

Figure 34. Chemical solution feeder and diaphragm pumps, removal and installation.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1
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EMC 4610-203-12/73

1 Discharge and suction caps	3 Gasket (2 rqr)	5 Diaphragm
2 Poppet valve (2 rqr)	4 Pump body	

Figure 35. Solution feeder diaphragm pumps, disassembly and reassembly.

c. Cleaning and Inspection.

(1) Clean all foreign matter from the pump components.

(2) Inspect for a white coating on any of the components. A white coating indicates mineral deposits. Remove the deposits by wiping and soaking the parts in muriatic acid (a 5 percent hydrochloric acid solution) or an approved cleaning solvent.

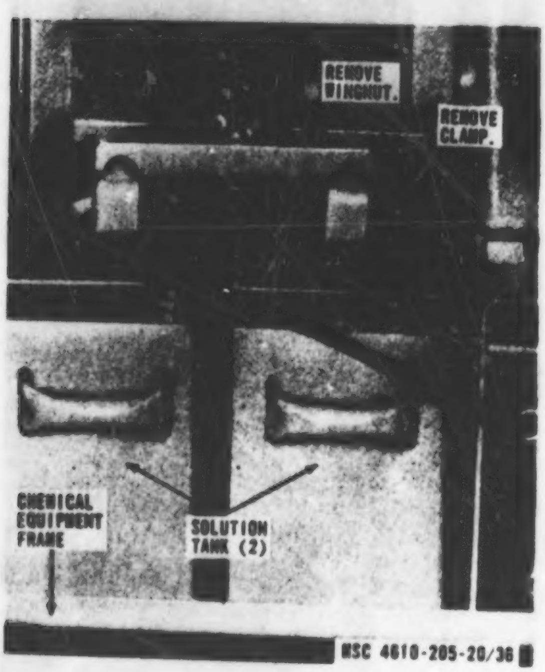


Figure 36. Chemical solution tanks, removal and installation.

(3) Inspect all parts for cracks, breaks, wear, and other damage. Pay special attention to the diaphragm for damage.

(4) Replace all defective parts.

d. Reassembly. Refer to figure 35 and reassemble the solution feeder diaphragm pumps.

e. Installation. Refer to figure 34 and install the solution feeder diaphragm pumps.

61. Chemical Solution Tanks

a. Removal. Refer to figure 36 and remove the chemical solution tanks.

b. Cleaning and Inspection.

(1) Wash the solution tanks in soap and water.

(2) Inspect the tanks for cracks, breaks, dents, or other damage.

(3) Inspect the rubber linings for leaks and evidence of deterioration.

(4) Inspect the clamp stud for damaged threads.

(5) Replace all defective parts.

c. Installation. Refer to figure 36 and install the chemical solution tanks.

62. Slurry Feeder Drive Chain, Chain Guard, and Chain Tightener

a. Removal.

(1) Refer to figure 37 and remove the chain guard.

(2) Refer to figure 38 and remove the drive chain and chain tightener.

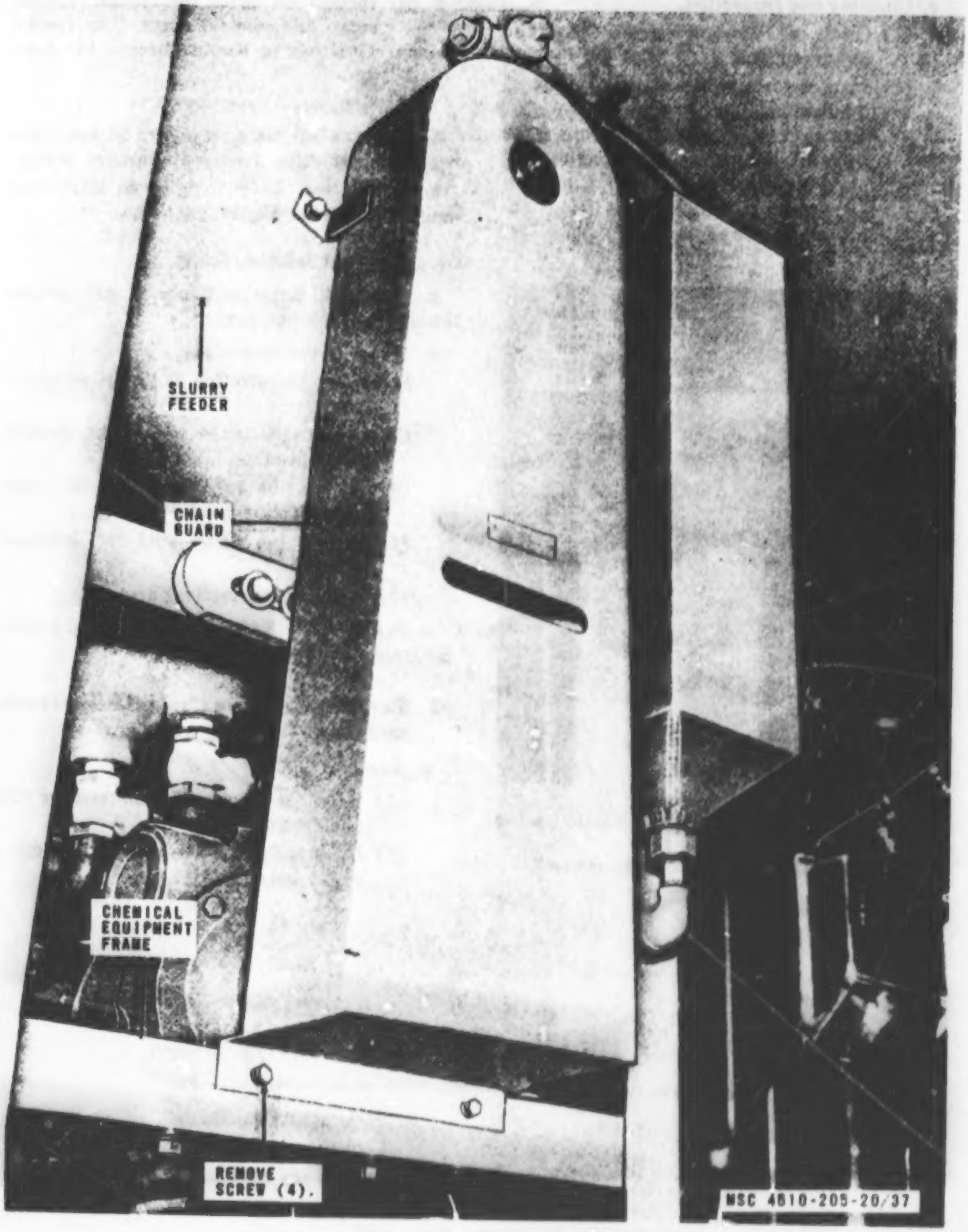
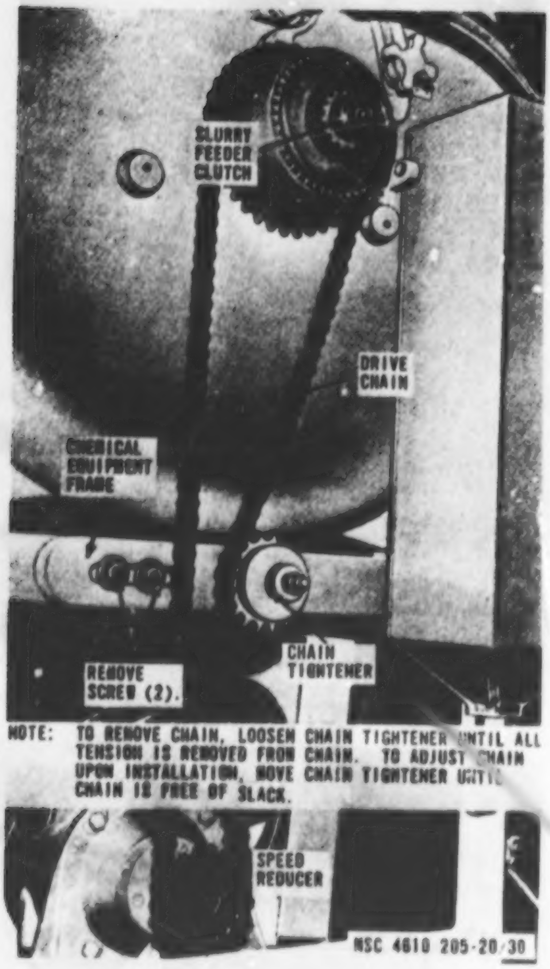

SLURRY FEEDER
CHAIN GUARD
CHEMICAL EQUIPMENT FRAME
REMOVE SCREW (4).
MSC 4610-205-20/37

Figure 37. Chain guard, removal and installation.



NOTE: TO REMOVE CHAIN, LOOSEN CHAIN TIGHTENER UNTIL ALL TENSION IS REMOVED FROM CHAIN. TO ADJUST CHAIN UPON INSTALLATION, MOVE CHAIN TIGHTENER UNTIL CHAIN IS FREE OF SLACK.

Figure 38. Slurry feeder drive chain and chain tightener, removal, installation, and adjustment.

b. Disassembly. Refer to figure 39 and disassemble the chain tightener.

c. Cleaning and Inspection.

(1) Clean all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the guard for cracks, breaks, and dents.

(3) Inspect the chain for cracked, broken, or worn links and rollers.

(4) Inspect the chain tightener for cracks, breaks, wear, and damaged threads.

(5) Replace all damaged or defective parts.

d. Reassembly. Refer to figure 39 and reassemble the chain tightener.

e. Installation.

(1) Refer to figure 38 and install the chain tightener and chain.

(2) Refer to figure 37 and install the chain guard.

f. Chain Adjustment. Refer to figure 38 and adjust the drive chain.

63. Slurry Feeder Clutch and Shaft Bearings

a. Removal.

(1) Remove the drive chain (par. 62).

(2) Refer to figure 40 and remove the slurry feeder clutch.

b. Disassembly. Refer to figure 41 and disassemble the slurry feeder clutch.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

Caution: **Never use fuel oil, kerosene, or other fluids that will leave oily film on the friction plates.**

(2) Inspect all parts for cracks, breaks, and wear.

(3) Replace all defective parts.

d. Reassembly. Refer to figure 41 and reassemble the slurry feeder clutch.

e. Installation.

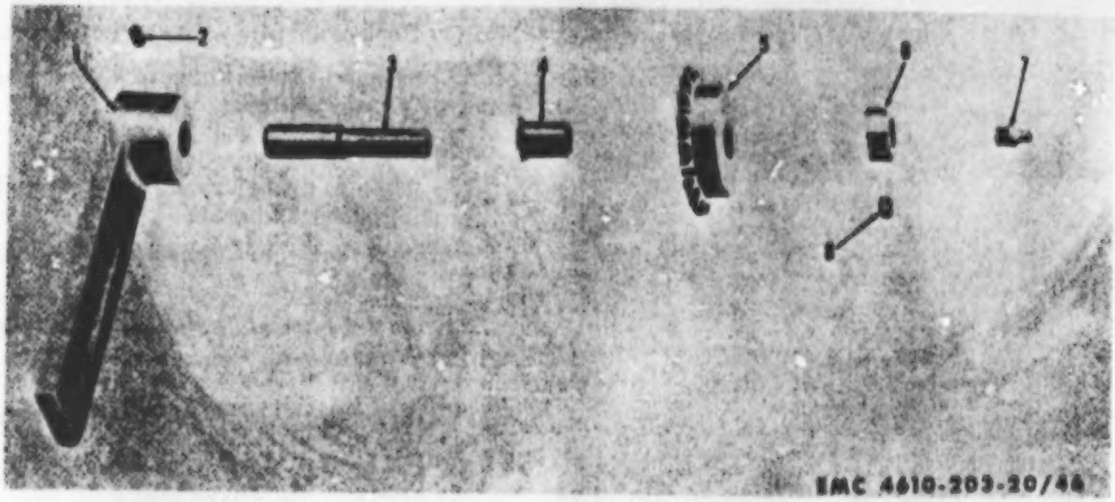
(1) Refer to figure 40 and install the slurry feeder clutch.

(2) Install the drive chain (par. 62).

f. Adjustment.

(1) Remove the chain guard (par. 62).

(2) Refer to figure 42 and adjust the slurry feeder clutch.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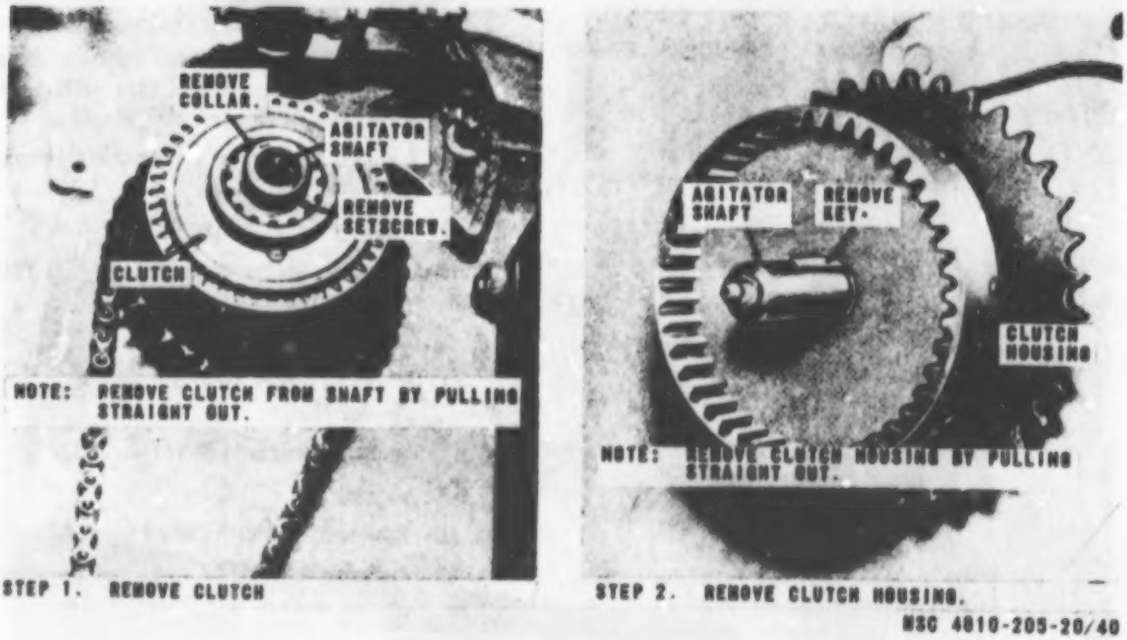
EMC 4610-203-20/44

1	Bracket	4	Bearing	7	Fitting
2	Setscrew	5	Sprocket, 18 teeth, ⅝ in. bore	8	Setscrew
3	Sprocket shaft	6	Collar		

Figure 39. Slurry feeder chain tightener, disassembly and reassembly.


REMOVE COLLAR.
AGITATOR SHAFT
REMOVE SETSCREW.
CLUTCH
AGITATOR SHAFT
REMOVE KEY.
CLUTCH HOUSING

NOTE: REMOVE CLUTCH FROM SHAFT BY PULLING STRAIGHT OUT.

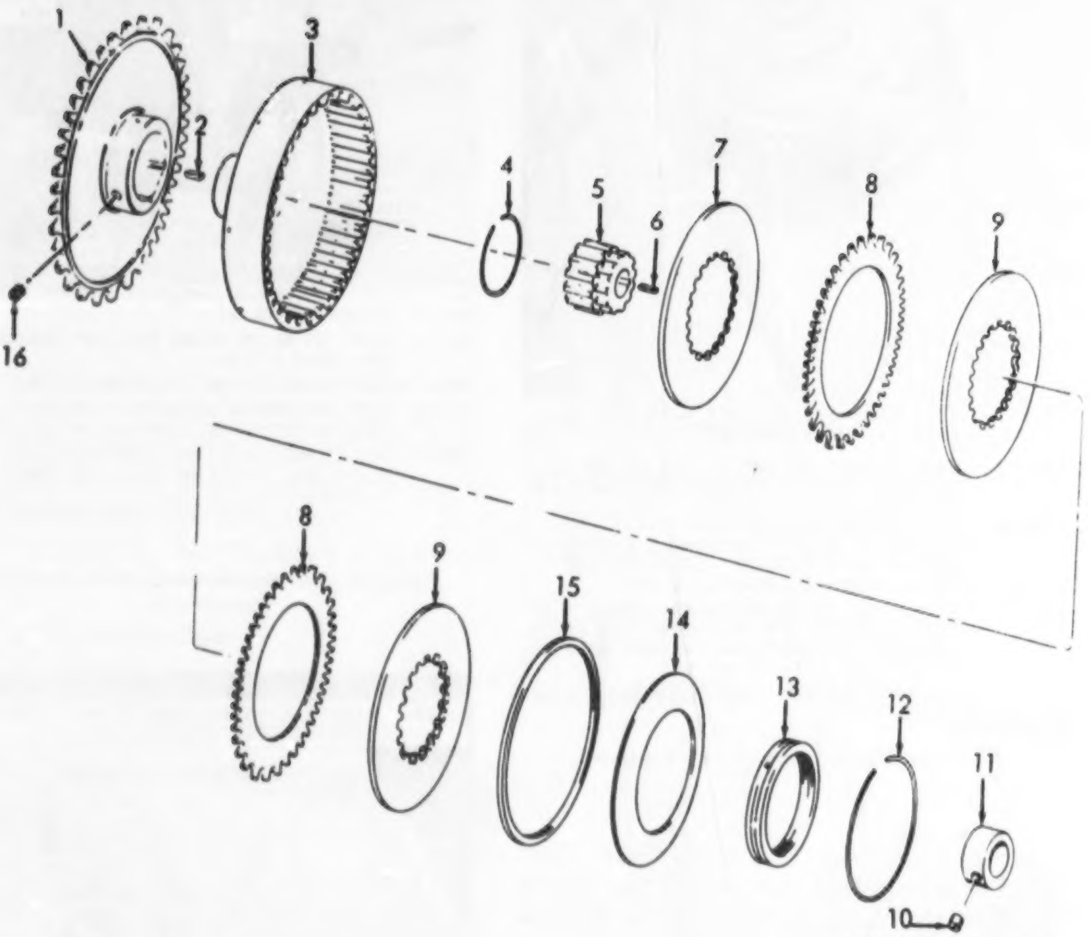
NOTE: REMOVE CLUTCH HOUSING BY PULLING STRAIGHT OUT.

STEP 1. REMOVE CLUTCH

STEP 2. REMOVE CLUTCH HOUSING.

NSC 4610-205-20/40

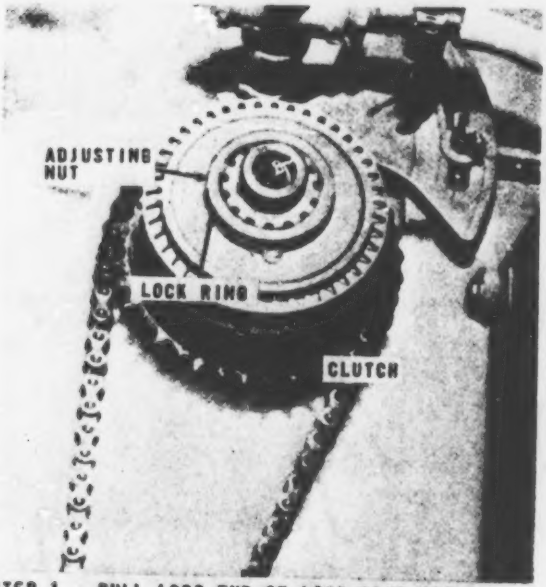
Figure 40. Slurry feeder clutch, removal, installation, and adjustment.



MSC 4610-205-20/41

1	Sprocket
2	Key, machine, ¼ x ¼ x ⅞ in.
3	Housing
4	Lock ring
5	Drive hub
6	Key, machine, 5/16 x 5/16 x 1⅛ in.
7	Back plate
8	Housing plate
9	Hub plate
10	Setscrew, 5/16–18 x ⅜ in.
11	Collar
12	Lock ring
13	Adjusting nut
14	Spring
15	Pressure ring
16	Setscrew, 5/16–18 x ⅝ in.

Figure 41. Slurry feeder clutch, disassembly and reassembly.



STEP 1. PULL LOOP END OF LOCK RING OUT OF HOLE IN ADJUSTING NUT.

STEP 2. TURN ADJUSTING NUT CLOCKWISE TO INCREASE TORQUE AND COUNTERCLOCKWISE TO DECREASE.

NOTE: THE CLUTCH MUST BE JUST TIGHT ENOUGH TO PREVENT SLIPPING DURING NORMAL OPERATION BUT LOOSE ENOUGH TO SLIP UNDER ABNORMAL LOAD.

STEP 3. AFTER CLUTCH IS ADJUSTED, TURN ADJUSTING NUT SO THAT LOOP END OF LOCKING RING EXTENDS THROUGH HOLE IN NUT AND INTO DRIVE HUB.

NSC 4810-205-20/42

Figure 42. Slurry feeder clutch, adjustment.

g. Shaft Bearings. The slurry feeder shaft bearings are equipped with packing that may be replaced if leakage should occur. Refer to figure 43 for replacement of the bearing packing.

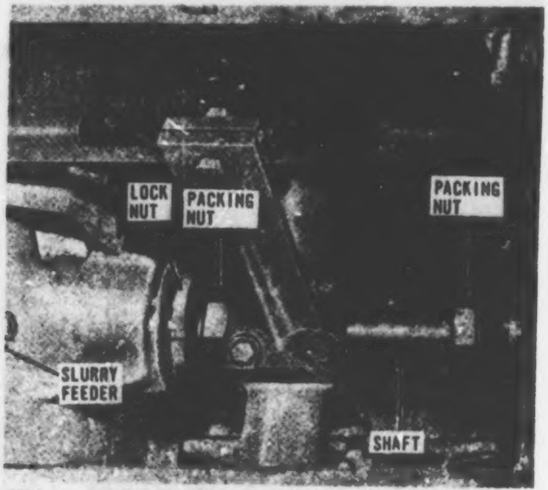
64. Limestone Slurry Ejector

a. Removal. Refer to figure 44 and remove the limestone slurry ejector.

b. Disassembly. Refer to figure 45 and disassemble the limestone slurry ejector.

c. Cleaning and Inspection.

(1) Clean all parts in soap and water and blow out with compressed air, if available.



STEP 1. LOOSEN PACKING NUT.

STEP 2. SLIDE SPRING AND WASHER BACK FROM PACKING AND REMOVE PACKING.

NOTE: DO NOT LOOSEN LOCK NUT TO REMOVE PACKING.

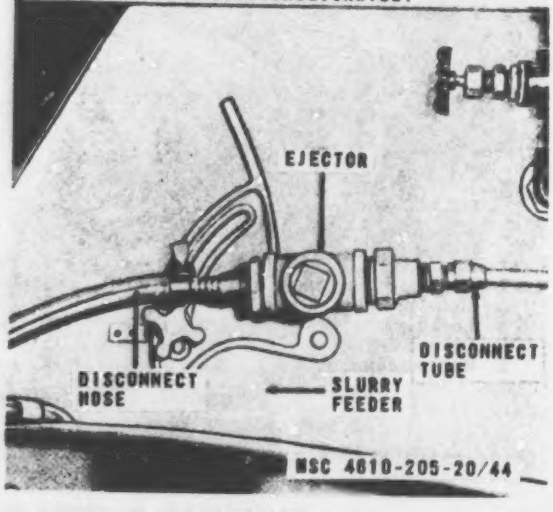
STEP 3. PLACE NEW PACKING AROUND SHAFT AND PUSH INTO POSITION USING SPRING AND WASHER.

STEP 4. INSTALL PACKING NUT AND TIGHTEN UNTIL A SLIGHT DRAG IS FELT ON SHAFT WHEN TURNED BY HAND.

NSC 4810-205-20/43

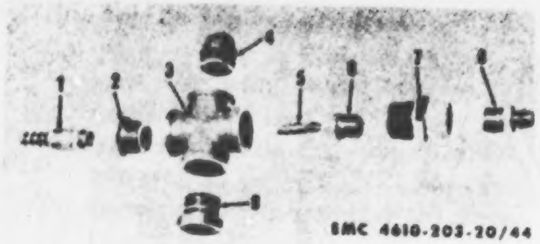
Figure 43. Slurry feeder shaft bearings, packing replacement.

NOTE: REMOVE EJECTOR FROM SLURRY FEEDER BY TURNING COUNTERCLOCKWISE.



NSC 4810-205-20/44

Figure 44. Limestone slurry ejector, removal and installation.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SMC 4610-203-20/44

1	Adapter, pipe to hose, ½ in.
2	Bushing, pipe, ½ x 1 in.
3	Pipe cross, 1 in.
4	Plug, pipe, ⅛ x ⅛ in.
5	Nipple, pipe, ⅛ x 1½ in.
6	Bushing, pipe, ⅛ x ½ in.
7	Coupling, pipe, ⅛ x ½ in.
8	Connector
9	Bushing, pipe, ¾ x 1 in.

Figure 45. Limestone slurry ejector, disassembly and reassembly.

(2) Inspect all parts for cracks, breaks, wear, or other damage.

(3) Replace all defective parts.

d. Reassembly. Refer to figure 45 and reassemble the limestone slurry ejector.

e. Installation. Refer to figure 44 and install the limestone slurry ejector.

65. Slurry Feeder Door

a. Removal. Refer to figure 46 and remove the slurry feeder door.

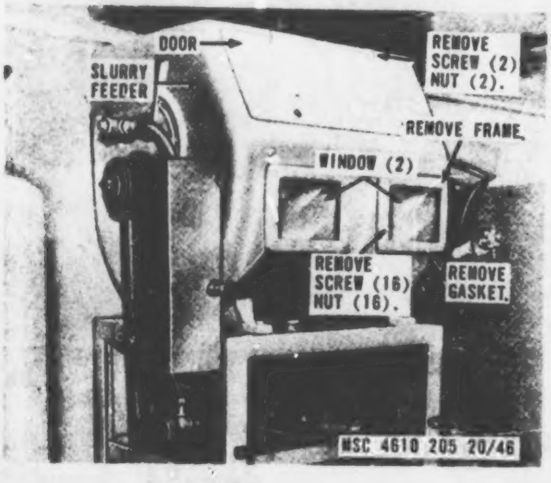

DOOR
SLURRY FEEDER
REMOVE SCREW (2) NUT (2).
REMOVE FRAME
WINDOW (2)
REMOVE SCREW (16) NUT (16).
REMOVE GASKET
MSC 4610 205 20/46

Figure 46. Slurry feeder door and windows, removal and installation.

b. Cleaning and Inspection.

(1) Wash the slurry feeder doors in soap and water.

(2) Inspect the doors for cracks, warpage, and damaged or worn latches.

(3) Replace a damaged or defective door.

c. Installation. Refer to figure 46 and install the slurry feeder door.

66. Slurry Feeder Windows

a. Removal. Refer to figure 46 and remove the slurry feeder windows.

b. Cleaning and Inspection.

(1) Wash the windows in soap and water and dry thoroughly.

(2) Inspect the windows for cracks and breaks.

(3) Inspect the frames for warping.

(4) Replace all defective parts.

c. Installation. Refer to figure 46 and install the slurry feeder windows.

67. Diatomite Dilution Tank

a. Removal. Refer to figure 47 and remove the diatomite dilution tank.

b. Disassembly. Refer to figure 48 and disassemble the diatomite dilution tank.

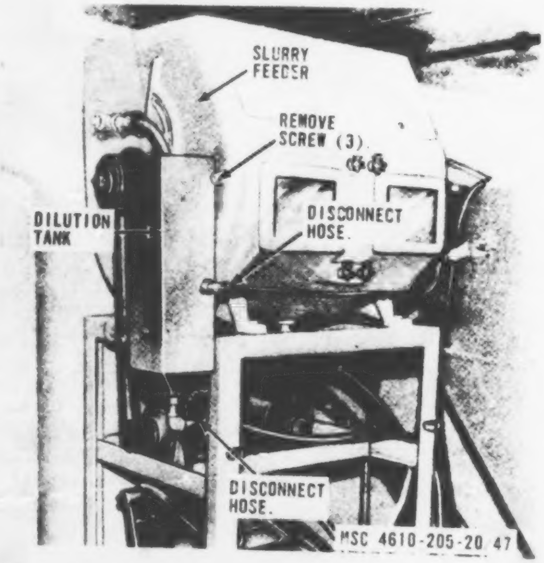
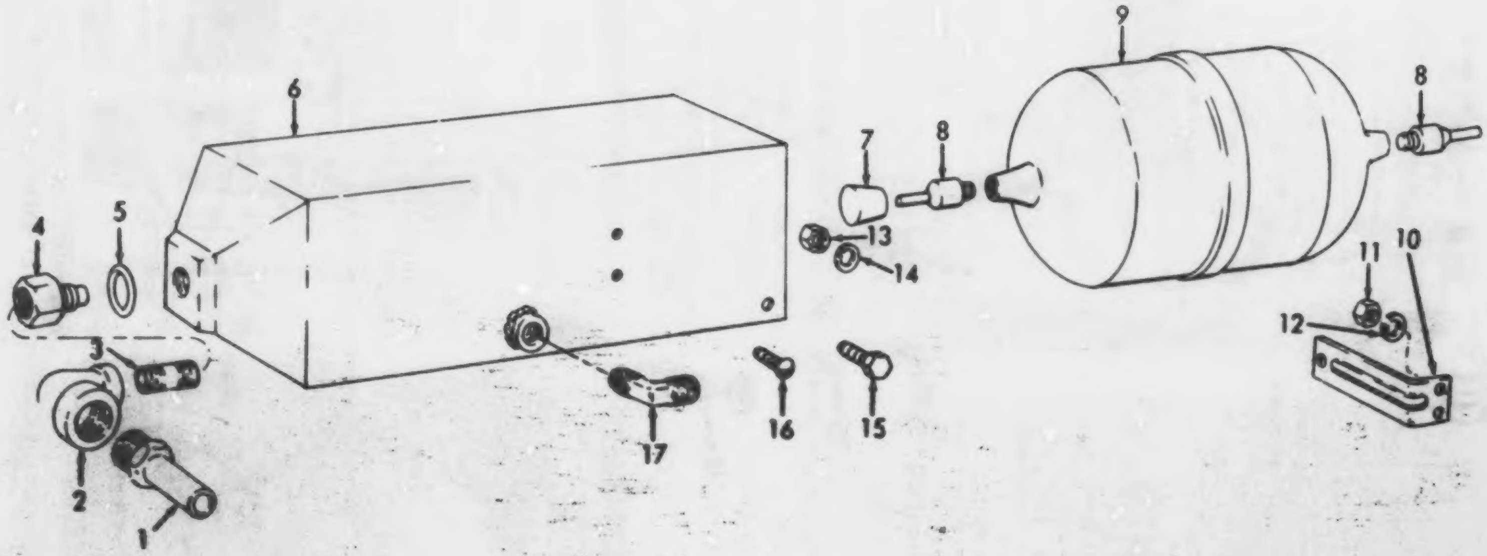

SLURRY FEEDER
REMOVE SCREW (3)
DILUTION TANK
DISCONNECT HOSE.
DISCONNECT HOSE.
MSC 4610-205-20 47

Figure 47. Diatomite dilution tank, removal and installation.



EMC 4610-203-12/84

1 Adapter, ½ in.
2 Elbow, pipe, 90°, ⅛ x ¼ in.
3 Nipple, pipe, ¼ x 1½ in.
4 Valve seat
5 Gasket
6 Dilution tank

7 Needle valve seat
8 Needle valve
9 Float
10 Upper guide bracket
11 Nut, hex, No. 6–32 (2 rqr)
12 Washer, lock, No. 6 (2 rqr)

13 Nut, hex, ¼–20 (2 rqr)
14 Washer, lock, ¼ in. (2 rqr)
15 Screw, cap, hex-head, ¼–20 x 1¼ in. (2 rqr)
16 Screw, machine, No. 6–32 x ⅜ in. (2 rqr)
17 Elbow, brass, 90°, ⅛ in.

Figure 48. Diatomite dilution tank, disassembly and reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts in soap and water and blow out with compressed air, if available.

(2) Inspect all parts for cracks, breaks, and wear.

(3) Inspect the float for holes and dents.

(4) Inspect the needle valve for worn or damaged seat.

(5) Replace all defective parts.

d. Reassembly. Refer to figure 48 and reassemble the diatomite dilution tank.

e. Installation. Refer to figure 47 and install the diatomite dilution tank.

68. Slurry Feeder Drive Motor and Belt

a. Removal.

(1) Remove the motor guard (TM 5–4610–205–10).

(2) Refer to figure 49 and remove the drive motor and belt.

(3) Refer to figure 16 and remove the slurry feeder drive motor power cable in a similar manner.

b. Cleaning and Inspection.

(1) Wipe the drive motor free of dirt and grease with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the motor for cracks, breaks, damaged insulation, and binding.

(3) Inspect the belt for cracks, fraying, and evidence of deterioration.

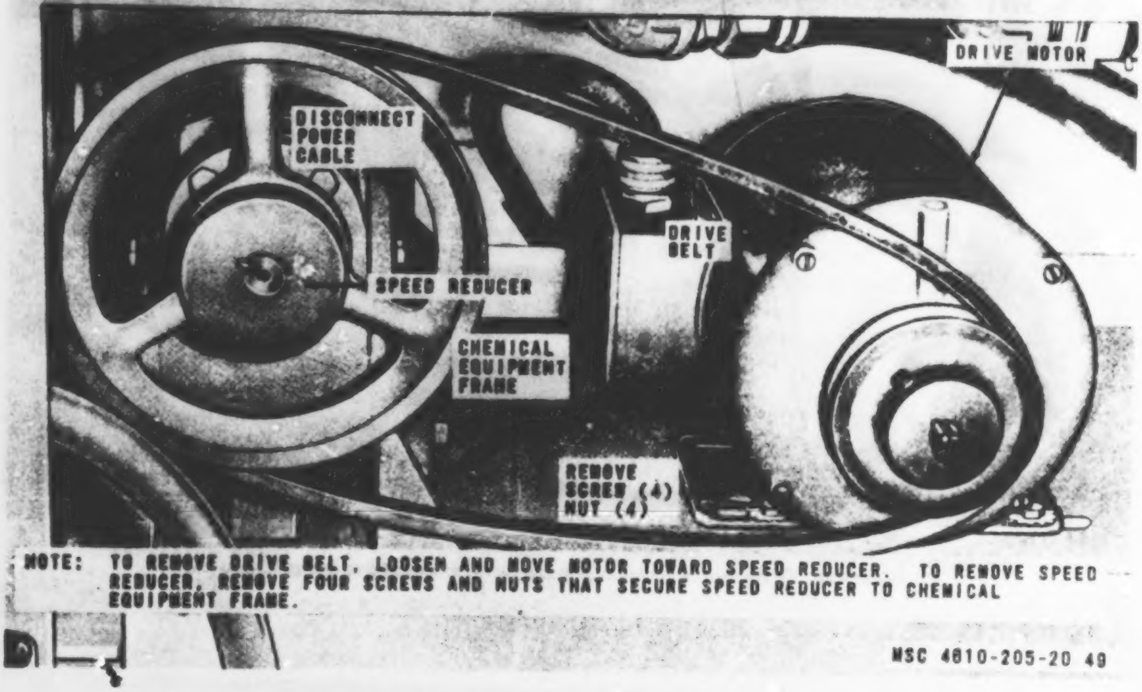
(4) Replace a defective drive motor or belt.

c. Installation.

(1) Refer to figure 16 and install the slurry feed drive motor power cable in a similar manner.

(2) Refer to figure 49 and install the drive motor and belt.

NOTE: TO REMOVE POWER CABLE, REFER TO FIGURE 16 AND REMOVE CABLE IN A SIMILAR MANNER.



NOTE: TO REMOVE DRIVE BELT, LOOSEN AND MOVE MOTOR TOWARD SPEED REDUCER. TO REMOVE SPEED REDUCER, REMOVE FOUR SCREWS AND NUTS THAT SECURE SPEED REDUCER TO CHEMICAL EQUIPMENT FRAME.

MSC 4610-205-20 49

Figure 49. Slurry feeder drive motor speed reducer, and belt, removal and installation.

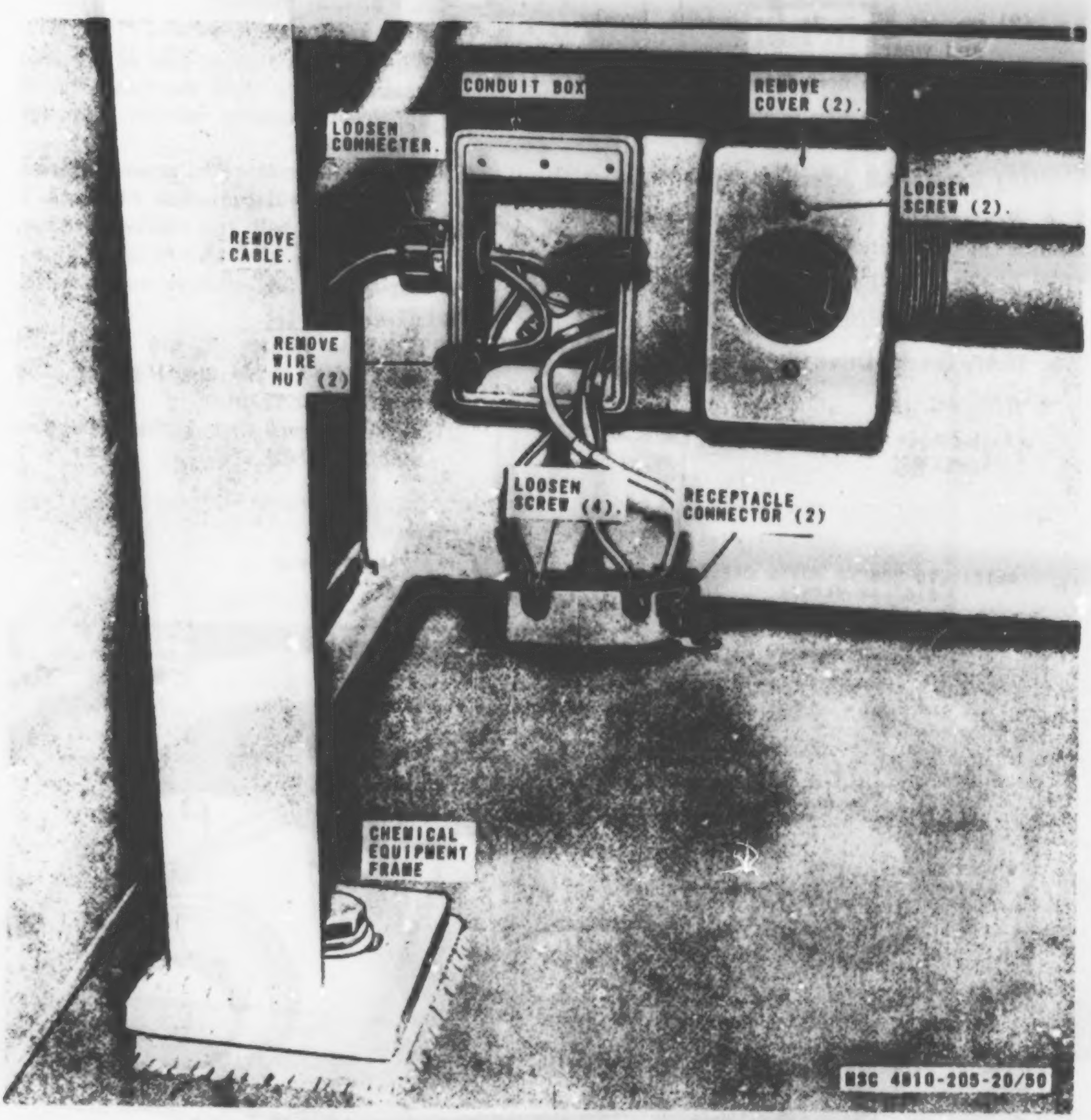

CONDUIT BOX
REMOVE COVER (2).
LOOSEN CONNECTER.
LOOSEN SCREW (2).
REMOVE CABLE.
REMOVE WIRE NUT (2)
LOOSEN SCREW (4).
RECEPTACLE CONNECTOR (2)
CHEMICAL EQUIPMENT FRAME
MSC 4810-205-20/50

Figure 50. Drive motor receptacle connectors, removal and installation.

(3) Install the motor guard TM 5-4610-205-10.

d. Testing. Refer to paragraph 46 and test the drive motor in a similar manner.

e. Adjustment. Adjust the drive belt as described in TM 5-4610-205-10.

69. Slurry Feeder Speed Reducer

a. Removal.

(1) Remove the drive motor guard TM 5-4610-205-10.

(2) Refer to figure 49 and remove the slurry feeder speed reducer.

b. Cleaning and Inspection.

(1) Clean the speed reducer with a cloth dampened in an approved cleaning solvent and dry thoroughly.

(2) Inspect the speed reducer for cracks, breaks, binding, and evidence of oil leakage.

(3) Replace a defective speed reducer.

c. Installation.

(1) Refer to figure 49 and install the slurry feeder speed reducer.

(2) Install the drive motor guard TM 5-4610-205-10.

70. Agitator and Slurry Feeder Drive Motor Receptacle Connectors

a. Removal. Refer to figure 50 and remove the drive motor receptacle connectors.

b. Cleaning and Inspection.

(1) Clean the receptacle connectors with a dry, clean cloth.

(2) Inspect for cracks, breaks, loose or broken terminals, or other damage.

(3) Replace a defective receptacle connector.

c. Installation. Refer to figure 50 and install the drive motor receptacle connectors.

Section IV. WASTE TANK AND STOWAGE BOX

71. General

This section contains maintenance information on the waste tank and stowage box. These items are located on the skid base of the water treatment section.

72. Waste Tank

a. Removal. Refer to figure 51 and remove the waste tank.

b. Cleaning and Inspection.

(1) Wash the waste tank in an approved cleaning solvent.

(2) Inspect the waste tank for cracks, breaks, or other defects that may cause the tank to leak.

(3) Replace a defective waste tank.

c. Installation. Refer to figure 51 and install the waste tank.

73. Stowage Box and Frame

a. Removal. Refer to figure 52 and remove the stowage box and frame.

b. Cleaning and Inspection.

(1) Clean the stowage box and frame in an approved cleaning solvent and dry thoroughly.

(2) Inspect the stowage box for cracks, breaks, defective hinges, and damaged latches.

(3) Inspect the frame for defective tie-down straps, warpage, or other damage.

(4) Replace all defective parts.

c. Installation. Refer to figure 52 and install the stowage box and frame.

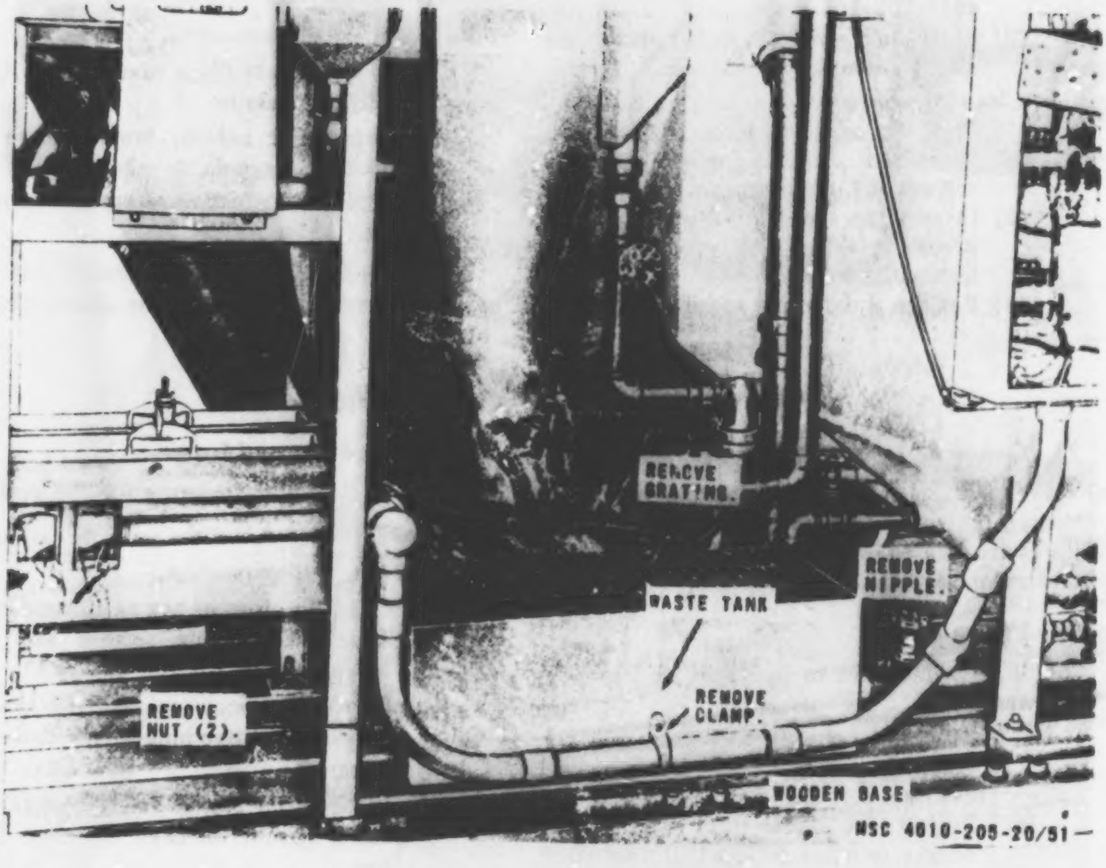

REMOVE GRATING.
REMOVE NIPPLE.
WASTE TANK
REMOVE CLAMP.
REMOVE NUT (2).
WOODEN BASE
MSC 4610-205-20/51

Figure 51. Waste tank, removal and installation.

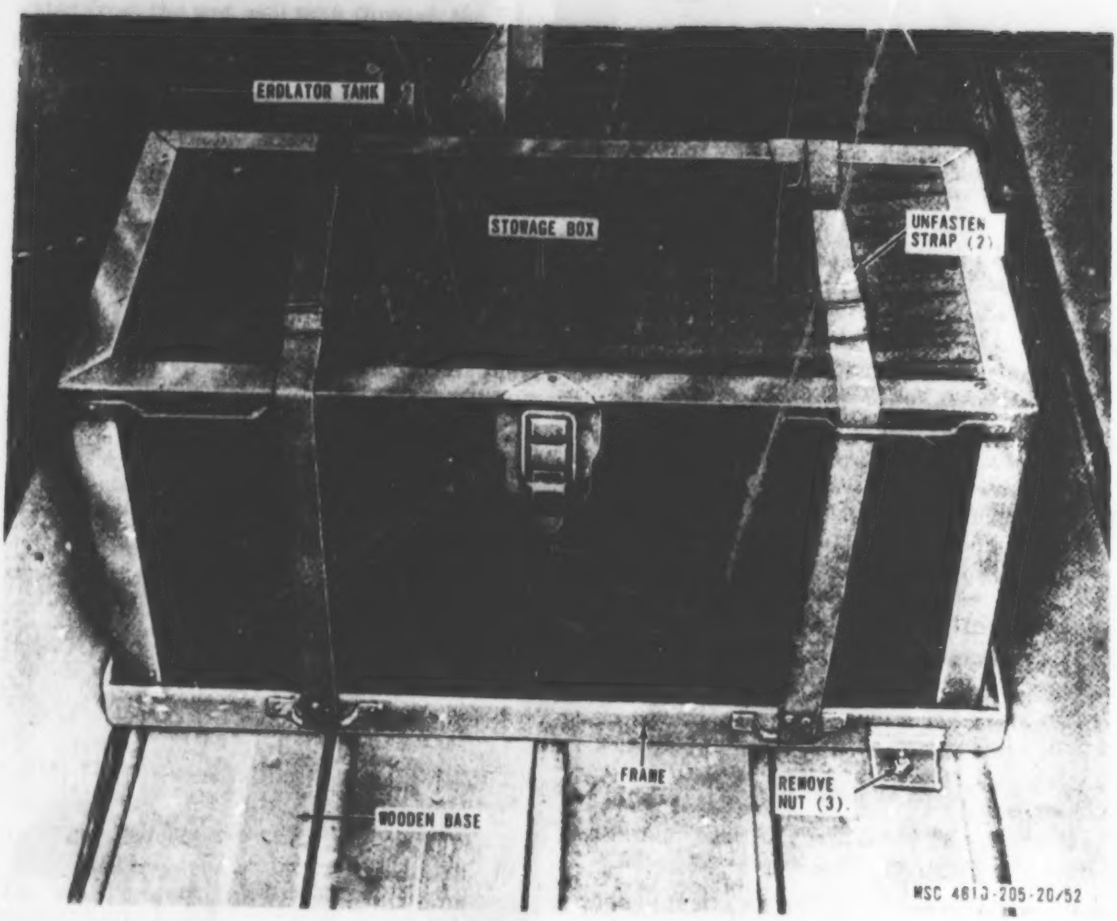

ERDLATOR TANK
STOWAGE BOX
UNFASTEN STRAP (2)
FRAME
REMOVE NUT (3)
WOODEN BASE
MSC 4610-205-20/52

Figure 52. Stowage box and frame, removal and installation.

CHAPTER 5
FILTER SECTION AND DRAIN TANK MAINTENANCE INSTRUCTIONS

Section I. FILTER PUMPS AND WASTE PUMP SWITCH BOX

74. General

This section contains maintenance information on the filter pumps and waste pump switch box. The filter pumps are mounted on the filter section skid and the switch box is mounted on the filter section recirculation pipe. The purpose of the filter pumps is to pump coagulated

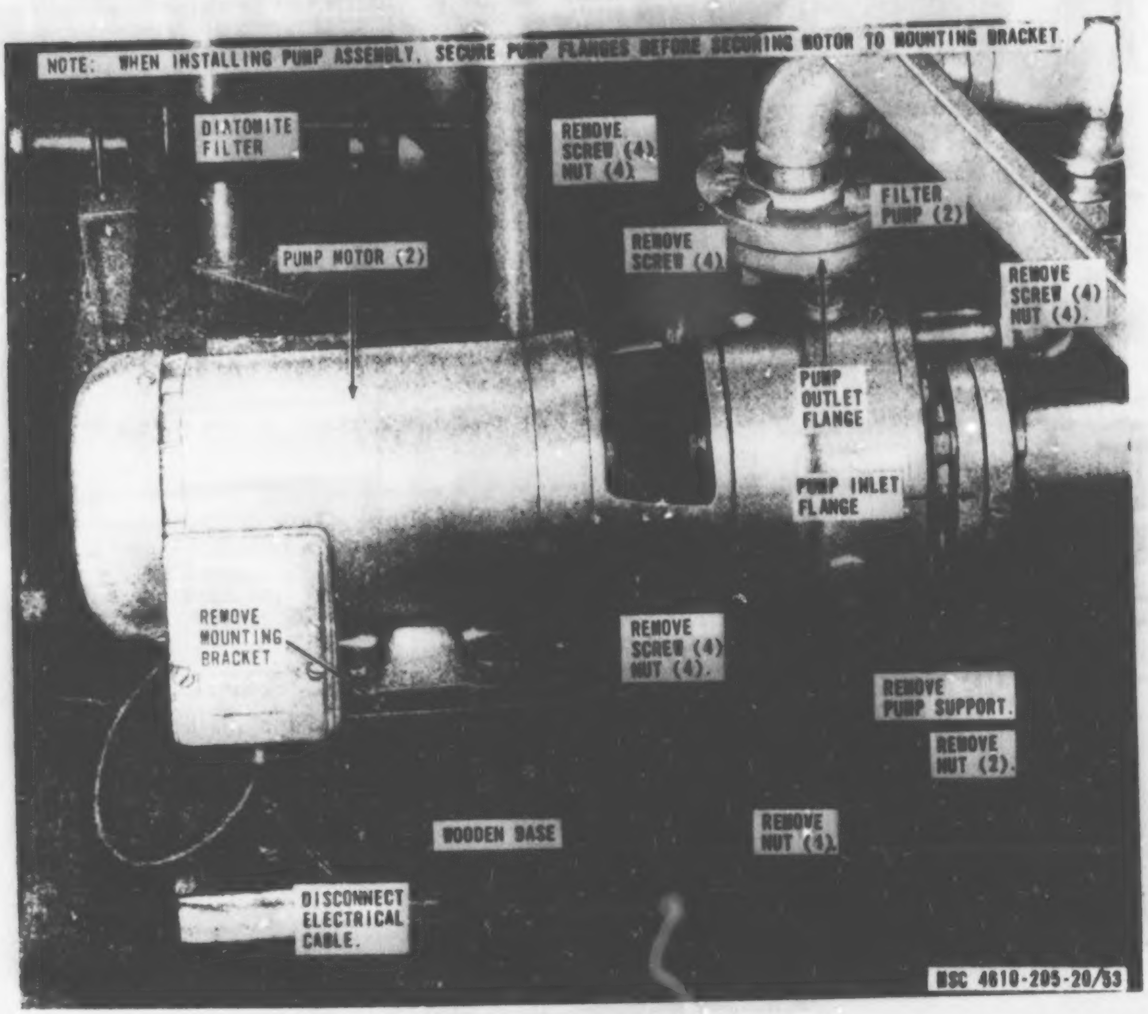

NOTE: WHEN INSTALLING PUMP ASSEMBLY, SECURE PUMP FLANGES BEFORE SECURING MOTOR TO MOUNTING BRACKET.
DIATOMITE FILTER
REMOVE SCREW (4) NUT (4)
FILTER PUMP (2)
REMOVE SCREW (4)
PUMP MOTOR (2)
REMOVE SCREW (4) NUT (4).
PUMP OUTLET FLANGE
PUMP INLET FLANGE
REMOVE MOUNTING BRACKET
REMOVE SCREW (4) NUT (4).
REMOVE PUMP SUPPORT.
REMOVE NUT (2).
WOODEN BASE
REMOVE NUT (4).
DISCONNECT ELECTRICAL CABLE.
NSC 4610-205-20/53

Figure 53. Filter pumps, removal and installation.

water from the wet well tank through the filter section. The purpose of the waste tank switch box is to provide controls for a waste water pump in the event that one should be used to pump water from the drain tank.

75. Filter Pumps

a. Removal.

(1) **Refer to figure 53 and remove the filter pumps.**

(2) **Refer to figure 16 and remove the filter pump power cables in a similar manner.**

b. Cleaning and Inspection.

(1) **Clean the pumps with a cloth dampened in an approved cleaning solvent and dry thoroughly.**

(2) **Inspect the pump for cracks, breaks, damaged wiring, and freedom of operation.**

(3) **Replace a defective pump.**

c. Installation.

(1) **Refer to figure 16 and install the filter pump power cables in a similar manner.**

(2) **Refer to figure 53 and install the filter pumps.**

76. Waste Pump Control Box

a. Removal. **Refer to figure 54 and remove the waste pump control box.**

b. Disassembly. **Refer to figure 55 and disassemble the waste pump control box.**

c. Cleaning and Inspection.

(1) **Clean all parts with a cloth dampened** in an approved cleaning solvent and dry thoroughly.

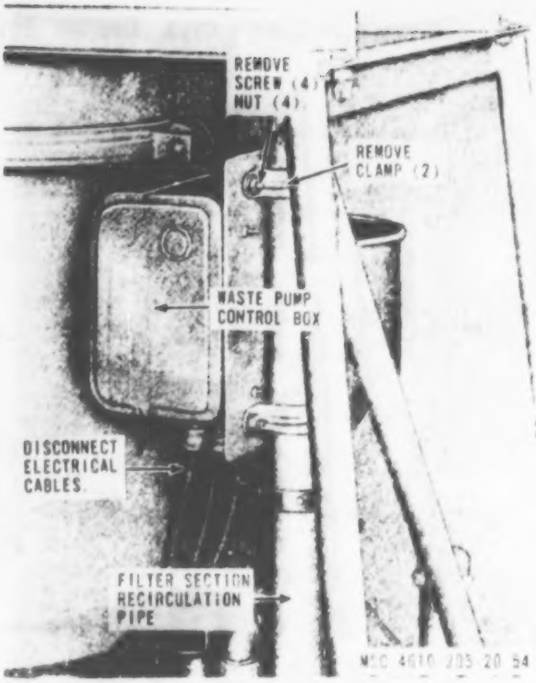


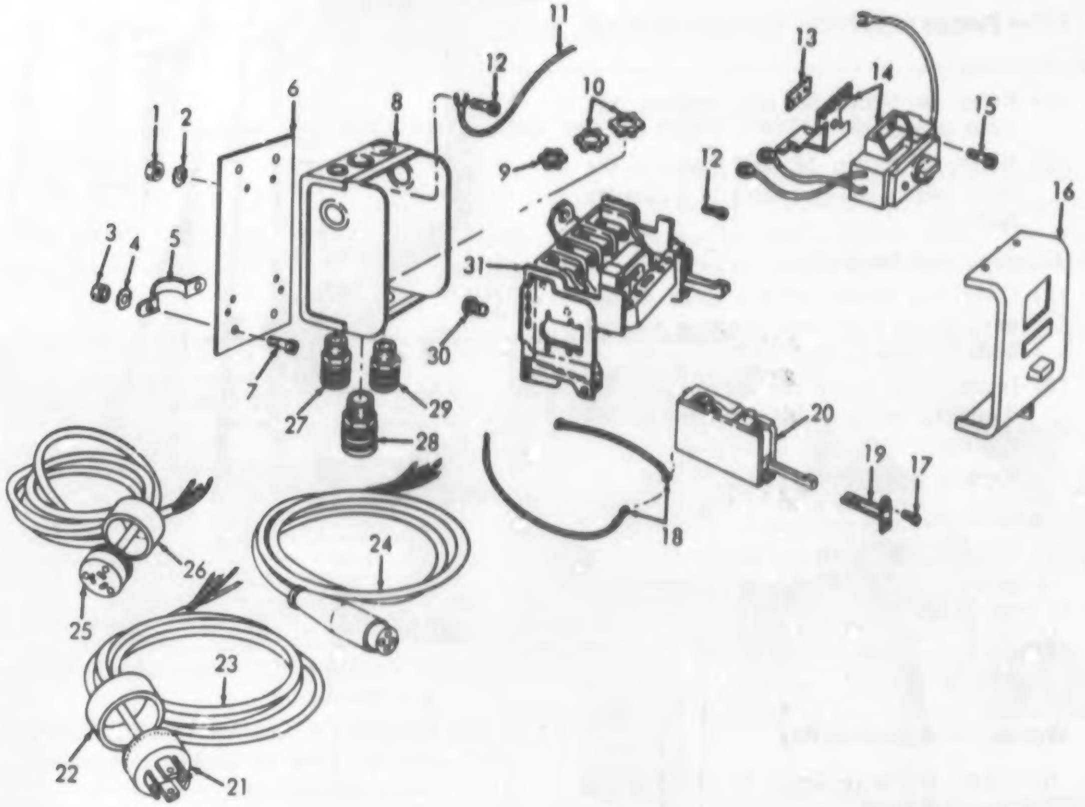
Figure 54. Waste pump control box, removal and installation.

(2) Inspect for cracks, breaks, damaged wiring, loose or broken terminals, or other defects.

(3) Replace all defective parts.

d. Reassembly. Refer to figure 55 and reassemble the waste pump control box.

e. Installation. Refer to figure 54 and install the waste pump control box.



MSC 4610-205-20/55

1	Nut, plain, hex, No. 8–32 (4 rqr)
2	Washer, lock, No. 8 (4 rqr)
3	Nut, hex, ¼–20 (4 rqr)
4	Washer, lock, ¼ in. (4 rqr)
5	Pipe strap
6	Starter bracket
7	Screw, cap, ¼–20 x ⅝ in. (4 rqr)
8	Starter box
9	Electrical conduit locknut
10	Locknut (2 rqr)
11	Electrical lead (4 rqr)
12	Screw, machine, pan-head, No. 8–32 x 1 in. (4 rqr)
13	Sheet spring nut
14	Starter switch
15	Screw, machine, No. 6–32 x ½ in. (2 rqr)
16	Starter box cover
17	Screw assembled washer, No. 10–32 x 7/16 in. (4 rqr)
18	Electrical lead
19	Thermal overload heater (2 rqr)
20	Armature relay (2 rqr)
21	Flexible cable connector
22	Connector cover
23	Electrical cable
24	Cable assembly
25	Flexible cable connector
26	Rubber cover
27	Floodlight support connector
28	Electrical power cable connector
29	Box connector
30	Screw, machine, No. 10–32 x ¼ in. (3 rqr)
31	Contacts and relay coil assembly

Figure 55. Waste pump control box, disassembly and reassembly.

Section II. FILTER PRESSURE GAGES, VALVES, PIPING, AND PRECOAT FUNNELS

77. General

This section provides information necessary to the performance of maintenance on the filter pressure gages, valves and piping, and precoat funnel.

78. Filter Pressure Gages

a. Removal. Refer to figure 56 and remove the filter pressure gages.

b. Cleaning and Inspection.

(1) Wipe the gages clean with a clean, dry cloth.

(2) Inspect for cracks, breaks, damaged threads, and loose pointer.

(3) Replace a defective gage.

c. Installation. Refer to figure 56 and install the filter pressure gages.

79. Filter Section Valves and Piping

a. Removal.

(1) Remove the filter pressure gages (par. 78).

(2) Refer to figure 56 and remove the filter section valves and piping.

b. Disassembly. Refer to figure 56 and disassemble the filter section valves and piping.

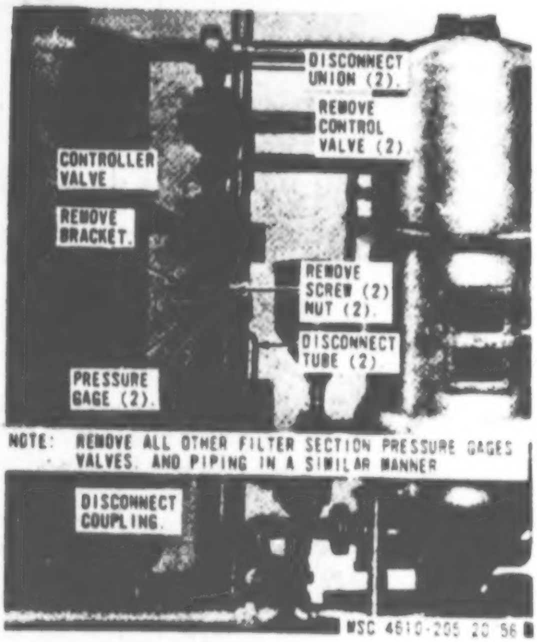
c. Cleaning and Inspection.

(1) Clean all parts in soap and water and dry thoroughly.

(2) Inspect all parts for cracks, breaks, damaged threads, wear, and corrosion or rust.

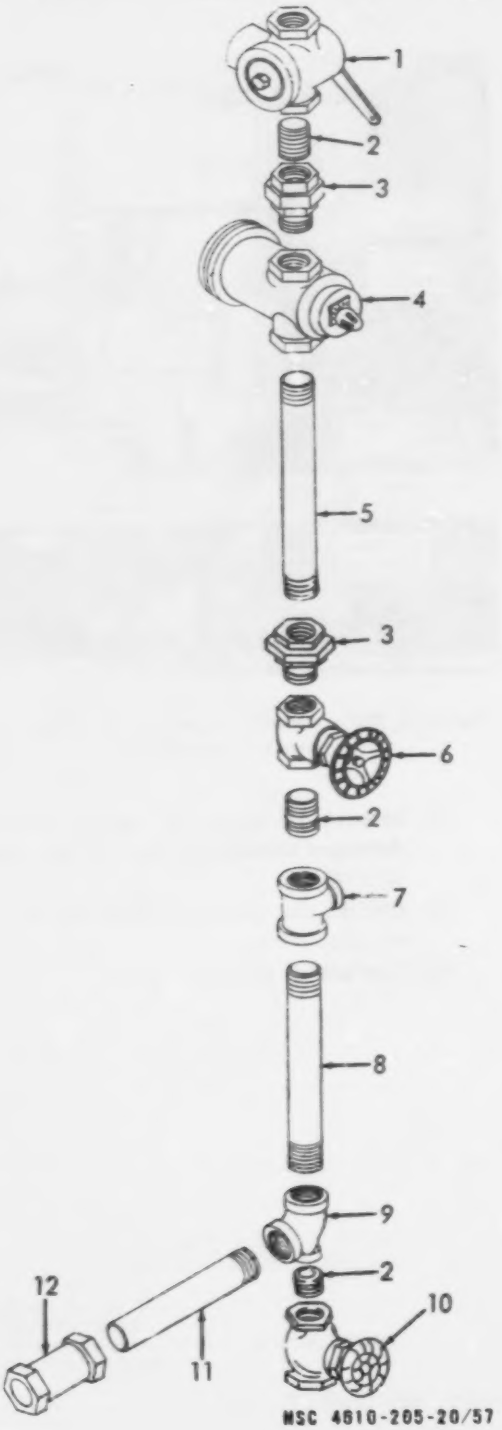
(3) Inspect the valves for freedom of operation.

(4) Replace all defective parts.


DISCONNECT UNION (2).
REMOVE CONTROL VALVE (2)
CONTROLLER VALVE
REMOVE BRACKET.
REMOVE SCREW (2) NUT (2).
DISCONNECT TUBE (2)
PRESSURE GAGE (2).
DISCONNECT COUPLING.
MSC 4610-205 20 56

NOTE: REMOVE ALL OTHER FILTER SECTION PRESSURE GAGES VALVES, AND PIPING IN A SIMILAR MANNER

Figure 56. Filter pressure gages, valves, and piping, removal and installation.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MSC 4610-205-20/57

1 Control valve C4–46
2 Nipple, pipe, 1½ x 1¾ in.
3 Union, pipe, 1½ in. (2 rqr)
4 Controller valve CV–45
5 Nipple, pipe, 1½ x 5 in.
6 Control valve CV–40
7 Tee, pipe, reducing, 1½ x 1½ x ½ in.
8 Nipple, pipe, 1½ x 10 in.
9 Tee, pipe, 1½ x 10 in.
10 Drain valve DV–39
11 Pipe threaded one end, 1½ x 6 in.
12 Coupling

Figure 57. Filter section valves and piping, disassembly and reassembly.

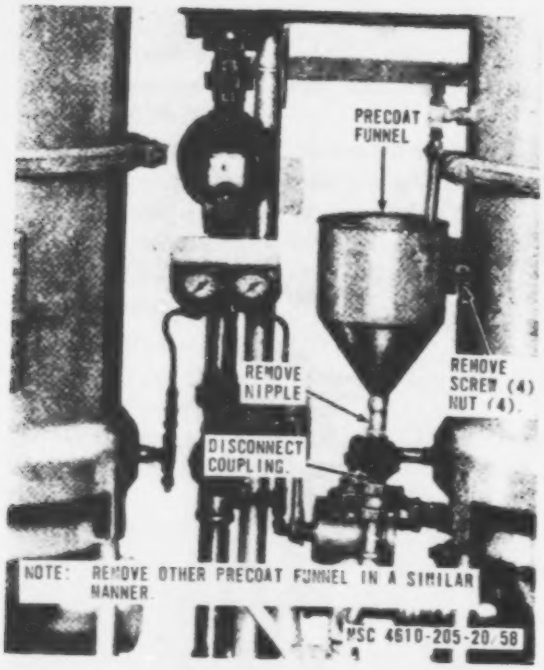
PRECOAT FUNNEL
REMOVE NIPPLE
REMOVE SCREW (4) NUT (4).
DISCONNECT COUPLING.
NOTE: REMOVE OTHER PRECOAT FUNNEL IN A SIMILAR MANNER.
MSC 4610-205-20/58

Figure 58. Precoat funnels, removal and installation.

d. Reassembly. Refer to figure 57 and reassemble the filter section valves and piping.

e. Installation.

(1) Refer to figure 56 and install the filter section valves and piping.

(2) Install the filter pressure gages (par. 78).

80. Precoat Funnels

a. Removal. Refer to figure 58 and remove the precoat funnels.

b. Cleaning and Inspection.

(1) Clean the precoat funnels in soap and water.

(2) Inspect for cracks, breaks, dents, and damaged threads.

(3) Replace a defective precoat funnel.

c. Installation. Refer to figure 57 and install the precoat funnels.

Section III. DIATOMITE FILTERS

81. General

The water purification unit is equipped with two diatomite filters. These filters are identical and are equipped with identical components. Since the maintenance procedures are the same for both filters, this section will cover one filter.

82. Air Release Valve

a. Removal. Refer to figure 59 and remove the air release valve.

b. Cleaning and Inspection.

(1) Wash the air release valve in soap and water and blow out with compressed air, if available.

(2) Inspect the valve for cracks, breaks, dents, and freedom of operation.

(3) Replace a defective air release valve.

c. Installation. Refer to figure 59 and install the air release valve.

83. Diatomite Filters

a. Removal. Refer to figure 60 and remove the diatomite filter.

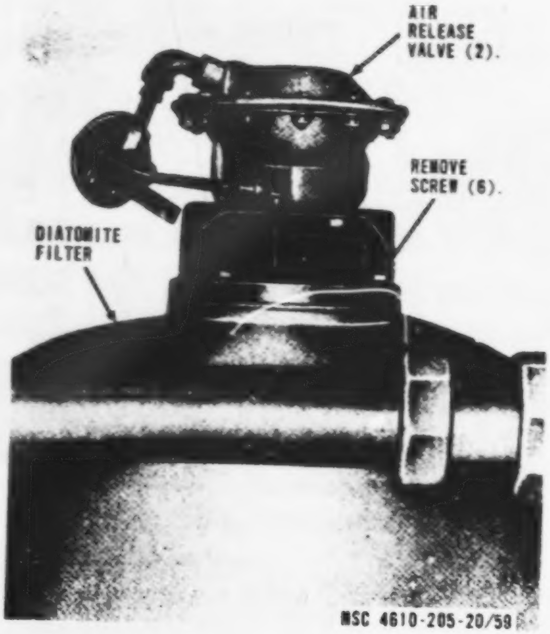
AIR RELEASE VALVE (2).
REMOVE SCREW (6).
DIATOMITE FILTER
MSC 4610-205-20/59

Figure 59. Air release valve, removal and installation.

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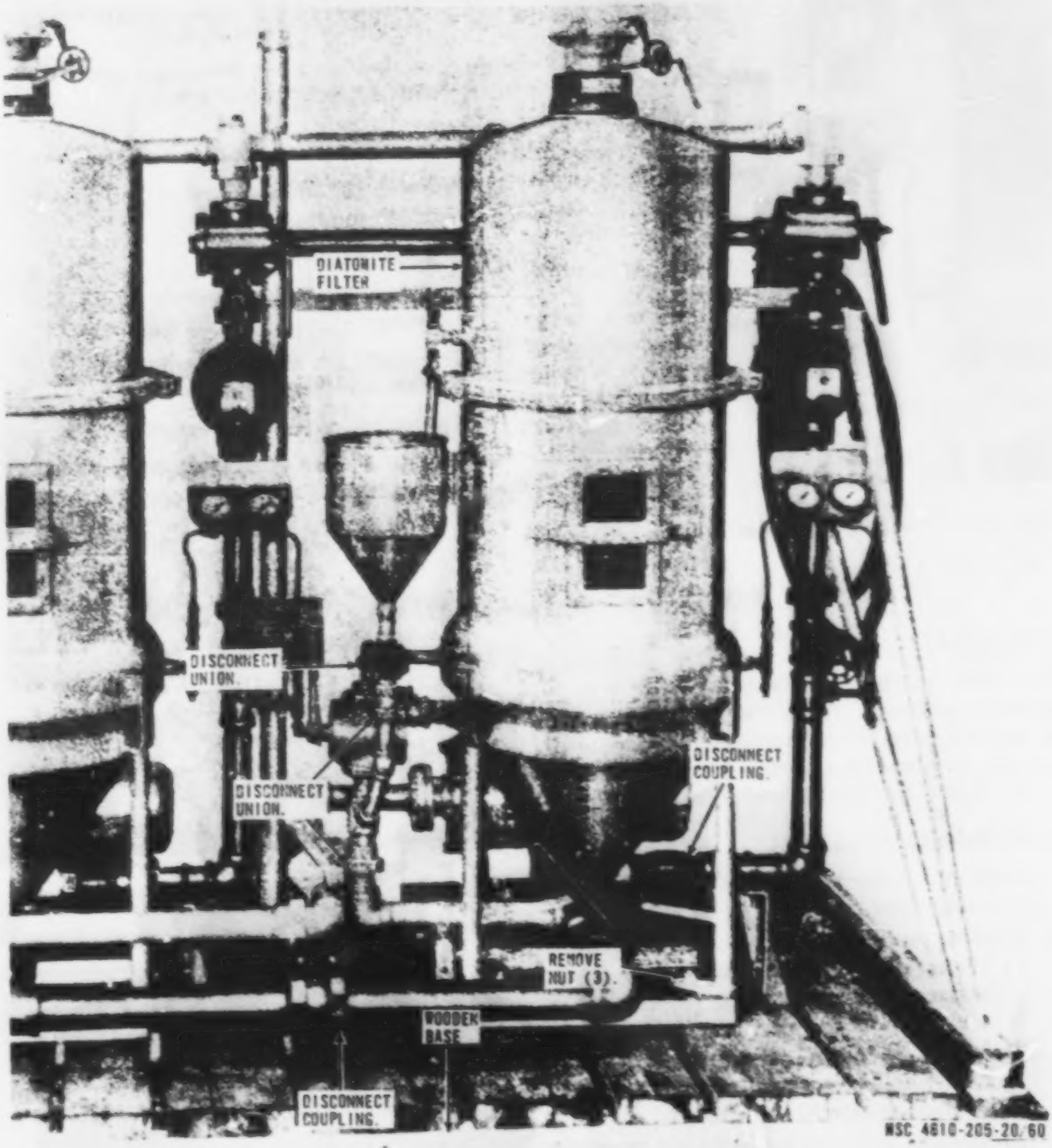

DIATOMITE FILTER
DISCONNECT UNION.
DISCONNECT UNION.
DISCONNECT COUPLING.
REMOVE NUT (3).
WOODEN BASE
DISCONNECT COUPLING.
NSC 4610-205-20/60

Figure 60. Diatomite filter, removal and installation.

b. Disassembly.

(1) Remove the filter elements TM 5-4610-205-10.

(2) Remove the air release valve (par. 82).

(3) Remove the precoat funnel (par. 80).

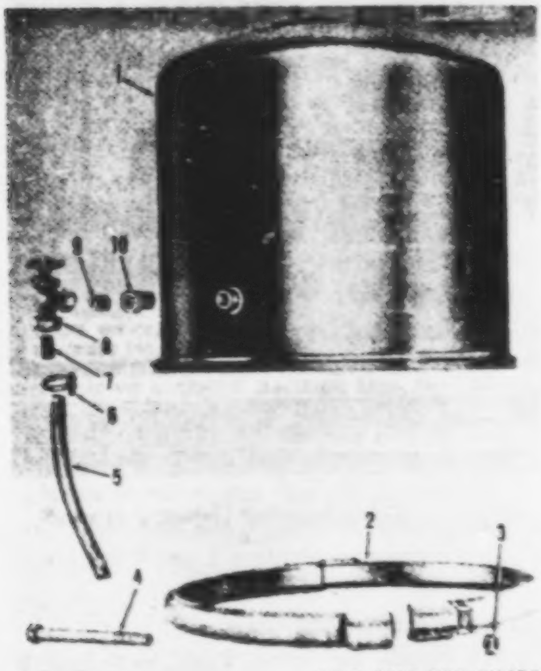
(4) Refer to figure 61 and disassemble the filter housing cover.

(5) Refer to figure 62 and disassemble the filter housing.

c. Cleaning and Inspection.

(1) Wash all parts in soap and water and dry thoroughly.

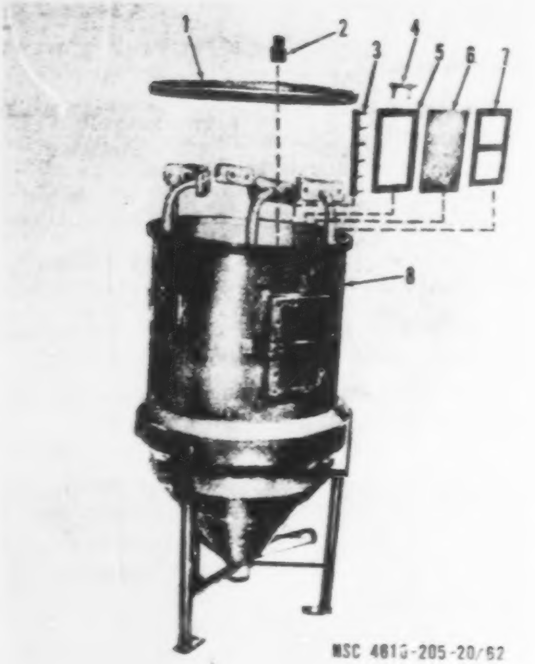
(2) Inspect for cracks, breaks, dents, damaged threads, and rust or corrosion.



EMC 4610-203-20/53

1 Filter housing cover
2 Clamping ring
3 Nut, hex, ⅝–18 in.
4 Bolt, machine, ⅝–18 x 6 in.
5 Plastic hose
6 Hose clamp
7 Nipple, pipe, ⅜ x 2 in.
8 Control valve CV–38
9 Nipple, pipe, ⅜ x 1½ in.
10 Bushing, pipe, ⅜ x ⅛ in.

Figure 61. Filter housing cover, disassembly and reassembly.



MSC 4610-205-20/62

1 Flange gasket
2 Adapter bushings (6 rqr)
3 Long window strip (2 rqr)
4 Short window strip (2 rqr)
5 Inside window gasket
6 Window glass
7 Outside window gasket
8 Filter housing

Figure 62. Filter housing, disassembly and reassembly.

(3) Inspect the window glass for serviceability.

(4) Replace all defective parts.

d. Reassembly.

(1) Refer to figure 62 and reassemble the filter housing.

(2) Refer to figure 61 and reassemble the filter housing cover.

(3) Install the precoat funnel (par. 80).

(4) Install the air release valve (par. 82).

(5) Install the filter elements TM 5-4610-205-10.

e. Installation. Refer to figure 60 and install the diatomite filter.

Section IV. DRAIN TANK

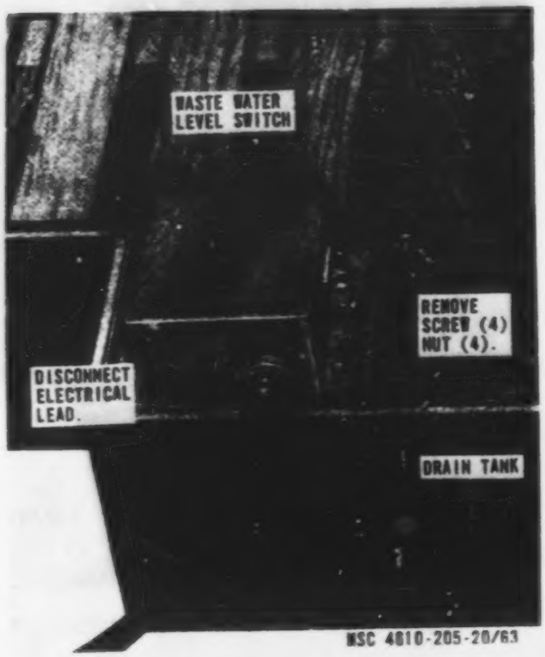
84. General

The drain tank is provided to collect waste water from the filter and water treatment sections. It is equipped with a float type switch to automatically control the level of the waste water in the tank by actuating a waste pump.

85. Waste Water Level Switch

a. Removal. Refer to figure 63 and remove the waste water level switch.

b. Disassembly. Refer to figure 64 and disassemble the waste water level switch.



NSC 4610-205-20/63

Figure 63. Waste water level switch, removal and installation.

c. Cleaning and Inspection.

(1) Wipe the switch free of foreign matter using a clean, dry cloth.

(2) Inspect the switch for cracks, dents, defective wiring, and damaged floats.

(3) Replace a defective switch.

d. Reassembly. Refer to figure 64 and reassemble the waste water level switch.

e. Testing. To test the waste water float switch, touch one probe of a multimeter to No. 1 terminal on the waste water switch terminal block. Touch the other probe to the red float lead and raise the float: Continuity should be indicated. Test the white lead in a similar manner.

f. Installation. Refer to figure 63 and install the waste water level switch.

86. Drain Tank

a. Removal.

(1) Disconnect the drain lines.

(2) Remove the waste water level switch (par. 85).

b. Cleaning and Inspection.

(1) Clean the drain tank with an approved cleaning solvent.

(2) Inspect for cracks, breaks, dents, or other defects that may cause leakage.

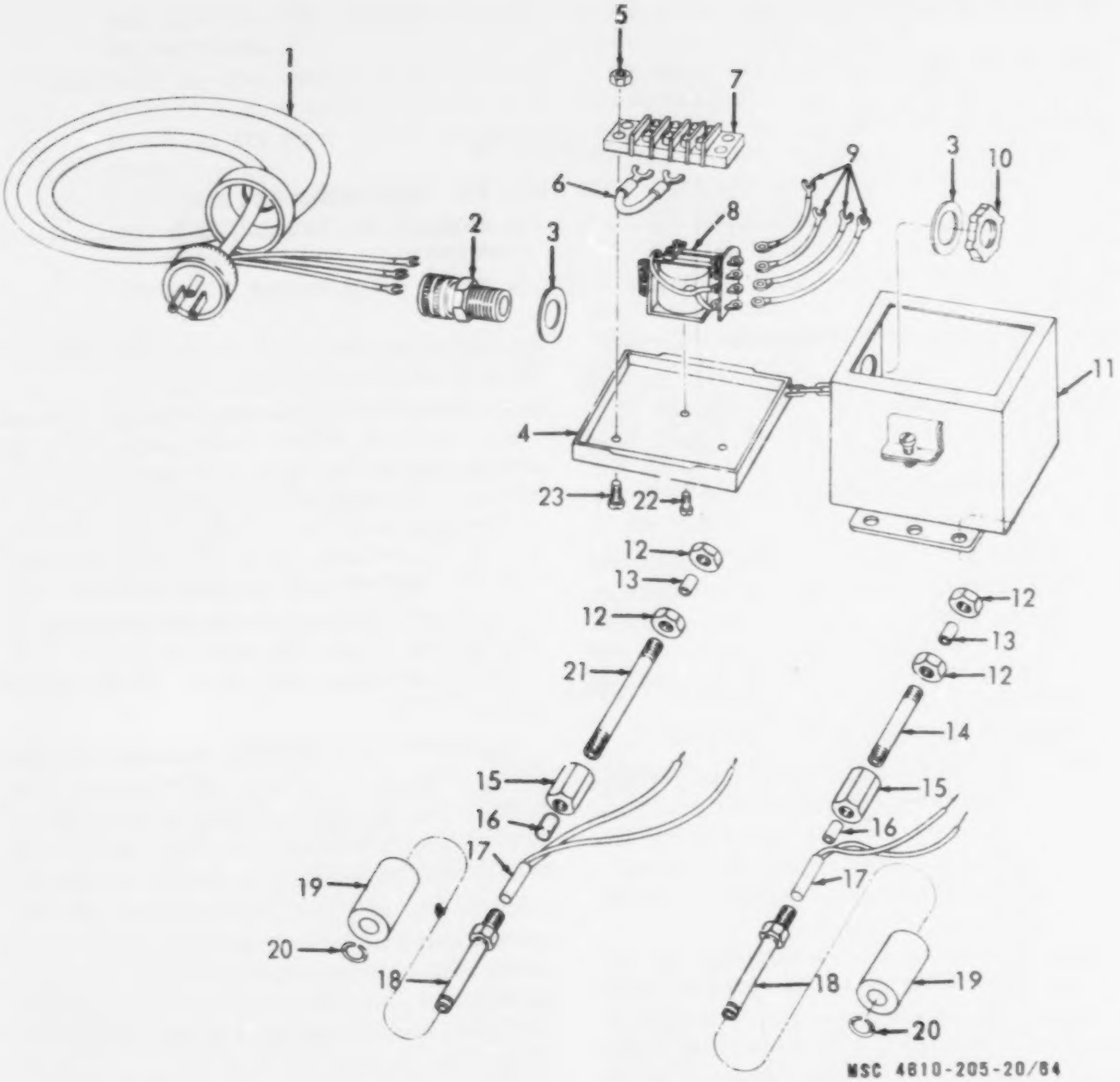
(3) Inspect the slat treads for damage.

(4) Repair or replace the slat treads as necessary. Replace a defective drain tank.

b. Installation.

(1) Install the waste water level switch (par. 85).

(2) Connect the drain lines.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MSC 4810-205-20/64

1 Electrical cable
2 Connector
3 Washer, flat, ⅞ in. (2 rqr)
4 Cover
5 Nut, hex, No. 8–32 (2 rqr)
6 Electrical lead
7 Terminal block
8 Relay
9 Electrical lead (4 rqr)
10 Connector nut
11 Box
12 Nut and insert (4 rqr)
13 Grommet (2 rqr)
14 Stem spacer
15 Coupling (2 rqr)
16 Grommet (2 rqr)
17 Switch (2 rqr)
18 Stem (2 rqr)
19 Float (2 rqr)
20 Retaining ring (2 rqr)
21 Stem spacer
22 Screw, machine, No. 6–32 x ¼ in. (2 rqr)
23 Screw, machine, No. 8–32 x ½ in. (2 rqr)

Figure 64. Waste water level switch, disassembly and reassembly.

CHAPTER 6
SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT WITHIN ZONE OF INTERIOR

87. Preparation of Equipment for Shipment

a. General. Detailed instructions for the preparation of equipment for domestic shipment are outlined within this paragraph. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. Inspection. Equipment will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. DA Form 2404 (Equipment Inspection and Maintenance Worksheet) will be executed on the equipment.

c. Cleaning and Drying.

(1) Thoroughly clean and dry all surfaces prior to application of preservatives. Approved methods of cleaning, dry, types of preservatives, and methods of application are described in TM 38-230.

(2) Refer to TM 5-4610-205-10 and thoroughiy clean all surfaces that come in contact with chemicals or water. Wash with clean soapy water and rinse with clean water. Drain the unit and dry thoroughly. Leave all valves and draincocks open.

d. Painting. Paint all surfaces when the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. A proeprly annotated depreservation guide will be completed concurrently with preservation for each water purification unit with any peculiar requirements outlined in blocks 27 through 33. The completed depreservation guide will be placed with the equipment in a water proof envelope, marked "Depreseravtion Guide" and fastened in a conspicuous location.

f. Exposed Surfaces. Coat exposed ferrous metal surfaces subject to corrosion such as shafts, levers, rods, etc., with a light coating of type P-6 preservative conforming to class 3 of Specification MIL-C-11796. If P-6 preservative is not available, GAA-GREASE, Automotive and Artillery may be used.

Caution: **Preservative will not be applied to any surface which will come in contact with chemical solutions and water, except waste water.**

g. Lubrication. Operate the slurry feeder drive motor and agitator drive motor long enough to completely lubricate the internal mechanism of the speed reducers. Operate the solution feeder to circulate the lubricating oil.

h. Sealing of Openings. Openings that will permit the direct entry of water into the interior of the various components of the water purification unit will be sealed with pressure-sensitive tape conforming to Specification PPP-T-60, type III, class 1.

i. Marking. Markings will conform to MIL-STD-129.

j. Filter Elements Sleeves Remove sleeves, wash in clean, soapy water; rinse in clean water; and dry thoroughly. Place between sheets of fiberboard and seal in a plastic or similar water-vapor resistant bag.

k. Disassembly, Disassembled Parts, and Basic Issue Items.

(1) Disassembly will be limited to the removal of parts and projecting components such as low level warning light and waste water drain piping

that interfere with packing in original containers.

(2) Pack the disassembled parts in basic issue items in suitable containers and secure to the base of the shipping crate.

(3) Coil hoses and cables to a minimum safe diameter and tie or strap the coil to the equipment to prevent movement.

l. Packing.

(1) The float switch and components on the water purification unit will be secured to prevent damage by movement or vibration.

(2) Refer to paragraph 7*b;* reverse the procedure and reassemble the shipping crate.

88. Loading Equipment for Storage

a. Loading by Lifting Device. Use suitable slings and lifting device and lift the unit to the bed of the carrier.

Warning: **When lifting the unit, be sure that the lifting device has a capacity of at least 6,000 pounds. Do not allow the unit to swing while suspended. Failure to observe this warning may result in damage to the unit or severe injury to personnel.**

b. Loading by Ramp. If a permanent ramp is not available, a temporary ramp may be constructed from the ground to the carrier. Use sufficiently heavy material. Make the incline as gradual as possible and support the ramp by blocking to prevent sagging and slipping. Place rollers beneath the unit and pull or push the unit up the ramp.

c. Blocking and Lashing. Block the unit with blocks wedged tightly against the base of the shipping container and securely spike to the bed of the carrier to prevent movement during transit.

Section II. LIMITED STORAGE

89. Preparation of Equipment for Storage

a. General. Detailed instructions for preserving and maintaining equipment in limited storage are outlined in this paragraph. Limited storage is defined as storage not to exceed 6 months. Refer to AR 743–505.

b. Inspection. Equipment will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. DA Form 2404 will be executed on the equipment.

c. Cleaning and Drying.

(1) Thoroughly clean and dry all surfaces prior to application of preservatives. Approved methods of cleaning, drying, types of preservatives, and methods of application are described in TM 38–230.

(2) Refer to TM 5–4610–205–10 and thoroughly clean all surfaces that come in contact with chemical or water. Wash with clean, soapy water and rinse with clean water. Drain the unit and dry thoroughly. Leave all valves and draincocks open.

d. Painting. Paint all surfaces when the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. A properly annotated depreservation guide will be completed concurrently wtih preservation for each water purification unit with any peculiar requirements outlined in blocks 27 through 33. The completed depreservation guide will be placed with the equipment in a water proof envelope, marked "Depreservation Guide" and fastened in a conspicuous place.

f. Exposed Surfaces. Coat exposed ferrous metal surfaces subject to corrosion such as shafts, levers, rods, etc., with a light coating of type P–6 preservative conforming to class 3 of Specification MIL–C–11796. If P–6 preservative is not available, GAA–GREASE, Automotive and Artillery may be used.

Caution: **Preservatives will not be applied to any surface which will come into contact with the chemical solutions and water, except waste water.**

g. Lubrication. Operate the slurry feeder drive motor and agitator drive motor long enough to completely lubricate the internal mechanism of the speed reducers. Operate the solution feeder to circulate the lubrication oil.

h. Sealing of Openings. Openings that will permit the direct entry of water into the interior of the various components of the water purification unit will be sealed with pressure-sensitive tape conforming to Specification PPP-T-60, type III, class 1.

i. Filter Element Sleeves. Remove sleeves, wash in clean, soapy water; rinse in clean water; and dry thoroughly. Place between sheets of fiberboard and seal in a plastic or similar water-vapor resistant bag.

j. Disassembly, Disassembled Parts, and Basic Issue Items.

(1) Disassembly will be limited to the removal of parts components that interfere with storage or are subject to pilferage or damage.

(2) Pack disassembled components and basic issue items with the unit to prevent loss or damage.

k. Storage.

(1) Store the water purification unit under cover if space is available.

(2) When suitable covered storage is not available, select a firm, level, well-drained storage location protected from prevailing winds. Position the unit on dunnage or other solid surfaces, cover the unit with a tarpaulin or other suitable waterproof covering, and tie down securely.

90. Inspection and Maintenance of Equipment in Storage

a. Inspection. When the water purification unit has been placed in storage, all scheduled preventive maintenance services, including inspection, will be suspended and preventive maintenance inspection will be performed as specified herein.

b. Worksheet and Preventive Maintenance. DA Form 2404 shall be prepared for each major item of equipment initially placed in limited storage, and every 90 days thereafter. Perform required maintenance promptly to make sure equipment is mechanically sound and ready for immediate use.

APPENDIX I
REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.

2. Lubrication

LO 5–4610–205–20	Water Purification Unit: Base Mounted; Electric Driven, Ac, 120/208 Volt, Single Phase and 3 Phase, 60 Cycle; 3,000 Gallons Per Hour (Met–Pro Model 3000–2700A).

3. Operating Instructions

TM 5–4610–205–10	Water Purification Unit: Base Mounted; Electric Driven, Ac, 120/208 Volt, Single Phase and 3 Phase, 60 Cycle; 3000 Gallons Per Hour (Met–Pro Model 3000–2700A) FSN 4610–857–0330.

4. Painting and Preservation

TB ENG 60	Preservation and Painting of Serviceable Corps of Engineer Equipment.

5. Preventive Maintenance

AR 750–5	Organization, Policies, and Responsibilities for Maintenance Operations.
TB ENG 347	Winterization Techniques for Engineer Equipment.
TM 38–750	The Army Equipment Record System and Procedures.
TM 9–207	Operation and Maintenance of Ordnance Material in Extreme Cold Weather.

6. Publication Indexes

DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310–1	Index of Administrative Publications.
DA Pam 310–2	Index of Blank Forms.
DA Pam 310–3	Index of Training Publications.
DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
DA Pam 310–5	Index of Graphic Training Aids and Devices.
DA Pam 310–25	Index of Supply Manuals—Corps of Engineers.

7. Shipment and Limited Storage

AR 743–505	Limited Storage of Corps of Engineers Mechanical Equipment.
TM 38–230	Preservation, Packaging, and Packing of Military Supplies and Equipment.

8. Supply Publications

SM 10–C9100–SL	Petroleum, Petroleum-Base Products and Related Materiel.
SM 5–4–4610–S12	Stocklist of Components of Sets, Kits, and Outfits; Water Purification Equipment Set; 3,000 Gal Per Hr; Base Mounted (FSN 4610–202–8700).

TM 5–4610–205–20P	**Organizational Maintenance Repair Parts and Special Tool Lists Water Purification Unit: Base Mounted, Electric Driven, Ac, 120/208 Volts,** Single Phase and 3 Phase, 60 Cycle; 3000 Gallons Per Hour (Met–Pro Model 3000–2700A) FSN 4610–857–0330.

9. Training Aids

FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.

10. Water Supply

TM 5–700	Field Water Supply.

APPENDIX II
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

This appendix contains explanations of all maintenance and repair functions authorized the various echelons. Section II contains the maintenance allocation chart.

2. Maintenance

Maintenance is any action taken to keep materiel in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of materiel includes the following:

a. Service. To clean, preserve, and replenish fuel and lubricants.

b. Adjust. To regulate periodically to prevent malfunction.

c. Inspect. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

d. Test. To verify serviceability and detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

e. Replace. To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

f. Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

g. Aline. To adjust two or more components of an electrical system so that their functions are properly synchronized.

h. Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

i. Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

3. Explanation of Columns

a. Functional Group. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from the Corps of Engineers Functional Grouping Indexes) are listed on the MAC in the appropriate numerical sequence. These indexes normally are set up in accordance with their function and proximity to each other.

b. Components and Related Operation. This column contains the functional grouping index heading, subgroup headings, and a brief description of the part starting with the noun name. It also designates the operations to be performed such as service, adjust, inspect, test, replace, repair, and overhaul.

c. Echelons of Maintennace. This column contains the various echelons of maintenance by number designation. An X placed in the appropriate echelon column in line wtih an indicated maintenance function authorized that echelon to perform the function. The X indicates the lowest echelon responsible for performing the function, but does not necessarily indicate repair parts stockage at that level. Higher echelons are authorized to perform the indicated functions of lower echelons.

d. Remarks. This column lists specific maintenance functions, special tools, cross-reference, instructions, and the like pertinent to the operation being performed.

Section II. MAINTENANCE ALLOCATION CHART

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Rem
15	FRAME						
1501	FRAME ASSEMBLY						
	Base Assembly, Erdlator and Filter						
	Replace	------	------	X			
	Repair	------	------	X			
	Frame, Chemical Feeders; Filter						
	Replace	------	------	X			
	Repair	------	X				
17	BODY; CAB; HOOD; HULL						
1708	STOWAGE RACKS, BOXES, STRAPS						
	Box Assembly, Stowage						
	Replace	------	X				
	Frame Assembly, Stowage Box						
	Replace	------	X				
	Repair	------	X				
	Housing Assemblies, Erdlator and Filter						
	Replace	------	X				
	Repair	------	X				
22	MISCELLANEOUS BODY, CHASSIS OR HULL, AND ACCESSORY ITEMS						
2210	DATA PLATES						
	Plates, Instruction and Identification						
	Replace	------	X				
	Plates, (C.O.E.)						
	Replace	------	------	X			
26	ACCESSORIES						
2602	ACCESSORIES						
	Cable Assemblies						
	Replace	------	X	------	------	------	Fabricate
	Hose Assemblies						
	Replace	------	X	------	------	------	Fabricate
40	ELECTRIC MOTORS						
4000	MOTOR						
	Motor, Alternating Current, Slurry Feeder						
	Inspect	X					
	Test	------	X				
	Replace	------	X				
	Motors, Alternating Current, Agitator and Filter Pump						
	Inspect	X					
	Test	------	X				
	Replace	------	X				
	Repair	------	------	X			
	Overhaul	------	------	------	X		
	Motor, Alternating Current, Solution Feeder						
	Inspect	X					
	Test	------	------	X			
	Replace	------	------	X			
	Repair	------	------	X			
	Overhaul	------	------	------	X		
4001	ROTOR ASSEMBLIES						
	Rotor Assembly						
	Test	------	------	X			
	Replace	------	------	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
4002	STATOR ASSEMBLIES						
	Stator, Field Ring Assembly						
	Test	------	------	X			
	Replace	------	------	X			
	Repair	------	------	X			
	Overhaul	------	------	------	------	X	Rewind
4004	VENTILATING SYSTEM						
	Fan, Ventilating						
	Replace	------	------	X			
	Guard, Fan						
	Replace	------	X				
4005	FRAME SUPPORTS AND HOUSING						
	Base, Sliding, Agitator Motor						
	Adjust	X					
	Replace	------	X				
	Repair	------	X				
4006	STARTING AND PROTECTIVE DEVICES						
	Starter, Motor						
	Replace	------	X				
	Repair	------	------	X			
	Relay, Overload						
	Adjust	------	X				
	Replace	------	X				
	Heater, Coil						
	Replace	------	X				
4007	DRIVE COMPONENTS						
	Pulley, Grooved						
	Replace	------	X				
	Belt, V						
	Adjust	X					
	Replace	------	X				
	Housing, Gear, Solution Feeder Motor						
	Service	X					
	Replace	------	------	X			
	Repair	------	------	X			
4009	CONTROL PANEL, HOUSING						
	Cabinet Assembly, Control						
	Replace	------	------	X			
	Latch, Door						
	Replace	------	X				
	Wiring Harness Assembly						
	Replace	------	------	X			
	Repair	------	------	X			
	Indicator, Light						
	Replace	------	X				
	Repair	------	X				
	Buzzer						
	Replace	------	X				
	Meters						
	Replace	------	X				
	Lamp, Incandescent						
	Replace	X					
4011	FUSE AND FUSE HOLDERS						
	Fuse						
	Replace	X					
	Holder, Fuse						
	Replace	------	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
4012	SWITCHES						
	Switches						
	Replace	------	X				
4017	TRANSFORMERS; RECTIFIERS						
	Transformer, Power Stepdown, Bell Ringing						
	Replace	------	X				
4018	TERMINAL BLOCKS, JUNCTION BOXES						
	Board, Terminal						
	Replace	------	X				
	Receptacle, Power						
	Replace	------	X				
	Bar, Bus						
	Replace	------	X				
42	ELECTRICAL EQUIPMENT						
4209	SIGNALING DEVICES						
	Switch Assembly, Level						
	Replace	------	X				
	Repair	------	X				
4216	FORMED CABLE ASSEMBLY						
	Cable, Power						
	Replace	------	X	------	------	------	Fabricate
	Repair	------	X				
47	GAGES						
4702	GAGES						
	Gage, Pressure, Dial Indicating						
	Replace	------	X				
4705	FLOW METERS AND REGULATORS						
	Gage, Liquid Level Differential						
	Replace	------	X				
	Repair	------	------	------	------	X	
51	WATER PURIFICATION SYSTEM						
5102	TANKS, CONTAINERS						
	Solution Feeder Assembly						
	Service	X					
	Adjust	X					
	Replace	------	X				
	Repair	------	------	X			
	Pump Assembly, Diaphragm						
	Replace	------	X				
	Repair	------	X				
	Window, Observation						
	Inspect	X					
	Replace	------	X				
	Feeder Assembly, Slurry						
	Service	X					
	Adjust	X					
	Replace	------	------	X			
	Repair	------	------	X			
	Latches, Door						
	Replace	------	X				
	Packing, Bearing						
	Replace	------	X				
	Agitator Assembly						
	Replace	------	------	X			
	Repair	------	------	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
5102	TANK, CONTAINERS—Continued.						
	Tank, Diatomite Dilution						
	Service	X					
	Replace	------	X				
	Repair	------	X				
	Tank, Chemical Solution						
	Service	X					
	Replace	------	X				
	Tank, Erdlator						
	Service	X					
	Replace	------	------	X			
	Repair	------	------	X			
	Launders						
	Service	X					
	Adjust	X					
	Replace	------	------	X			
	Filter Assembly, Diatomite						
	Service	X					
	Replace	------	X				
	Repair	------	X				
	Tank, Waste Water						
	Service	X					
	Replace	------	X				
	Rod, Effluent Launder						
	Adjust	X					
	Replace	------	X				
	Repair	------	X				
	Rails, Bridge						
	Replace	------	------	X			
	Float, Low Level Alarm						
	Adjust	X					
	Replace	------	X				
5103	PIPING, VALVES						
	Valves, Gate, Globe, Check						
	Replace	------	X				
	Valve, Float						
	Adjust	X					
	Replace	------	X				
	Repair	------	X				
	Sight Glass Assembly						
	Service	X					
	Replace	------	X				
	Valves, Plug 3 Way						
	Service	X					
	Replace	------	X				
	Repair	------	------	X			
	Hose Assembly, Rubber and Plastic						
	Replace	------	X	------	------	------	Fabricate
	Valve Assembly, Air Release						
	Replace	------	X				
	Repair	------	------	X			
	Piping						
	Inspect	X					
	Replace	------	X				

Functional group	Components and related operation	Echelons of maintenance					Remarks
		1	2	3	4	5	
5109	MULTIPLE TAKEOFF						
	Gear Assembly, Speed Reducer						
	Service	X					
	Replace	------	X				
	Repair	------	------	X			
	Bearing Unit, Pillow Block						
	Service	X					
	Replace	------	X				
	Belt, V Drive						
	Adjust	X					
	Replace	------	X				
	Shafts						
	Replace	------	X				
	Clutch Assembly						
	Service	X					
	Adjust	------	X				
	Replace	------	X				
	Repair	------	X				
	Pulleys						
	Replace	------	X				
	Sprockets						
	Replace	------	X				
	Tightener Assembly, Chain						
	Service	X					
	Adjust	X					
	Replace	------	X				
	Repair	------	X				
	Chain, Roller						
	Replace	------	X	------	------	------	Fabricate
	Repair	------	X				
55	PUMPS						
5500	PUMP ASSEMBLY						
	Pump Assembly, Filter						
	Replace	------	X				
	Repair	------	------	X			
	Head, Suction						
	Replace	------	------	X			
5501	SHAFTS, ROTORS, IMPELLERS						
	Impeller, Pump						
	Replace	------	------	X			
	Seal, Plain Encased						
	Replace	------	------	X			
	Sleeve, Impeller Shaft						
	Replace	------	------	X			

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By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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USAARMBD (2)
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GENDEP (OS) (10)
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AMS (3)
Chicago Engr Proc Ofc (10)
USA Mob Spt Cen (36)
ESCO (10)
Fld Comd, DASA (8)
USACOMZEUR (2)
USAREUR Engr Sup Con Agcy (10)
USAREUR Engr Proc Cen (2)
MAAG (1)
JBUSMC (1)
Units org under fol TOE:
5-48 (2)
5-237 (5)
5-262 (5)
5-267 (1)
5-278 (5)
5-279 (2)

NG: State AG (3).

USAR: Units—same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

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Chart Transposed to

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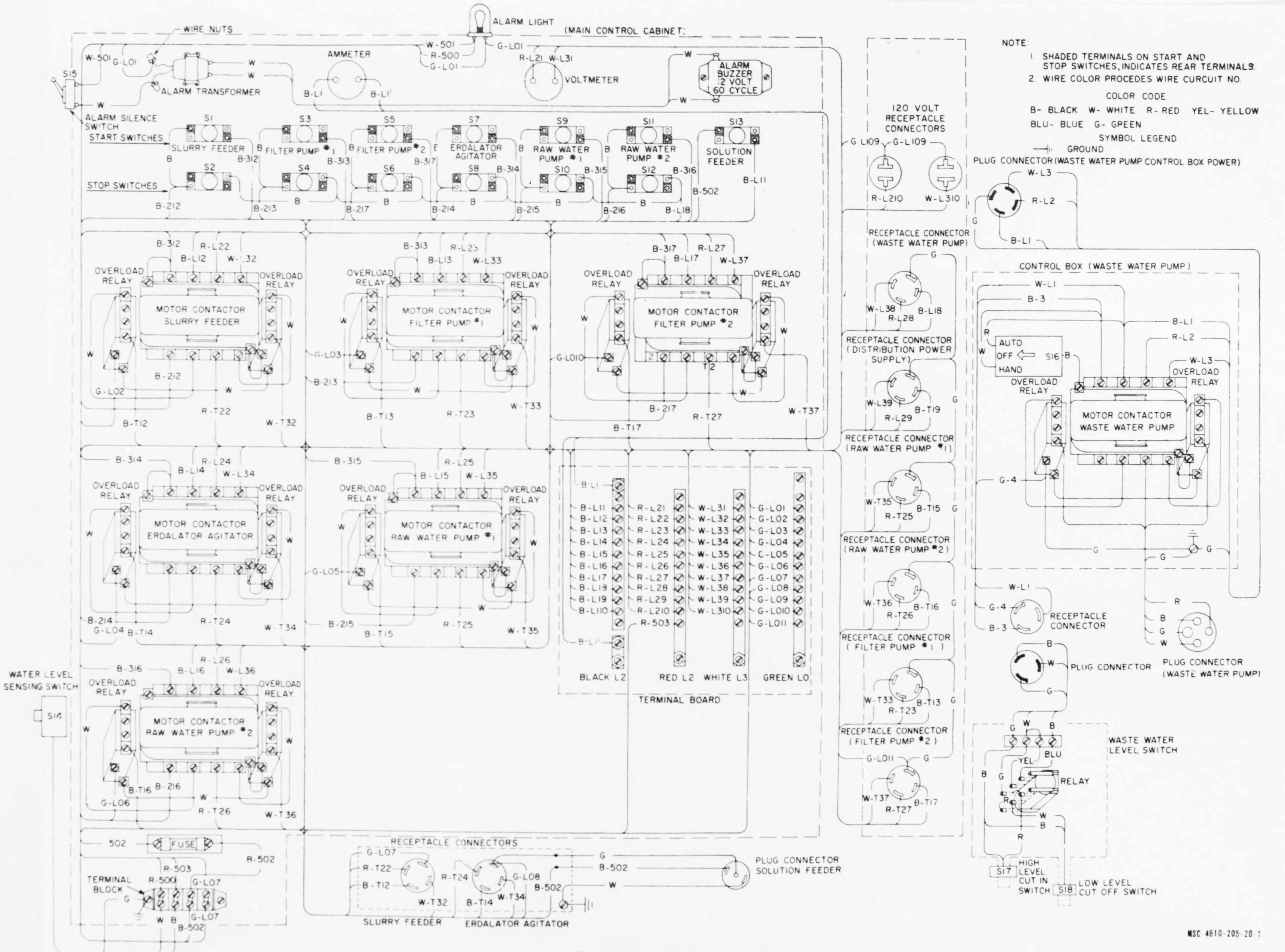

NOTE:
1. SHADED TERMINALS ON START AND STOP SWITCHES, INDICATES REAR TERMINALS.
2. WIRE COLOR PROCEDES WIRE CURCUIT NO.
COLOR CODE
B- BLACK W- WHITE R- RED YEL- YELLOW
BLU- BLUE G- GREEN
SYMBOL LEGEND
GROUND
ALARM LIGHT
(MAIN CONTROL CABINET)
WIRE NUTS
ALARM TRANSFORMER
AMMETER
VOLTMETER
ALARM BUZZER 2 VOLT 60 CYCLE
S15
ALARM SILENCE SWITCH
START SWITCHES
STOP SWITCHES
S1 SLURRY FEEDER S2
S3 FILTER PUMP #1 S4
S5 FILTER PUMP #2 S6
S7 ERDALATOR AGITATOR S8
S9 RAW WATER PUMP #1 S10
S11 RAW WATER PUMP #2 S12
S13 SOLUTION FEEDER
OVERLOAD RELAY
MOTOR CONTACTOR SLURRY FEEDER
MOTOR CONTACTOR FILTER PUMP #1
MOTOR CONTACTOR FILTER PUMP #2
MOTOR CONTACTOR ERDALATOR AGITATOR
MOTOR CONTACTOR RAW WATER PUMP #1
MOTOR CONTACTOR RAW WATER PUMP #2
WATER LEVEL SENSING SWITCH
S14
TERMINAL BOARD
BLACK L2
RED L2
WHITE L3
GREEN L0
FUSE
TERMINAL BLOCK
RECEPTACLE CONNECTORS
SLURRY FEEDER
ERDALATOR AGITATOR
PLUG CONNECTOR SOLUTION FEEDER
120 VOLT RECEPTACLE CONNECTORS
RECEPTACLE CONNECTOR (WASTE WATER PUMP)
RECEPTACLE CONNECTOR (DISTRIBUTION POWER SUPPLY)
RECEPTACLE CONNECTOR (RAW WATER PUMP #1)
RECEPTACLE CONNECTOR (RAW WATER PUMP #2)
RECEPTACLE CONNECTOR (FILTER PUMP #1)
RECEPTACLE CONNECTOR (FILTER PUMP #2)
PLUG CONNECTOR (WASTE WATER PUMP CONTROL BOX POWER)
CONTROL BOX (WASTE WATER PUMP)
AUTO
OFF
HAND
S16
MOTOR CONTACTOR WASTE WATER PUMP
RECEPTACLE CONNECTOR
PLUG CONNECTOR
PLUG CONNECTOR (WASTE WATER PUMP)
WASTE WATER LEVEL SWITCH
RELAY
S17 HIGH LEVEL CUT IN SWITCH
S18 LOW LEVEL CUT OFF SWITCH
MSC 4610-205-20 :

Figure 1. Practical wiring diagram.

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